STAFF REPORT
Hearing Officer

November 29, 2018

PROJECT NAME

NEC LAKE & SHIELDS – PDP180012

STAFF

Jason Holland, City Planner

PROJECT INFORMATION

PROJECT DESCRIPTION: This is a Project Development Plan for a 1.37 acre site at the northeast corner of West Lake and South Shields Street. An 11,000 square-foot one-story building is proposed for a child care center use. 41 parking spaces are located south of the building. Primary access to the site is proposed off James Court to the north and Lake Street to the south. A Land Use Code Modification is proposed to *Section 4.10(E)(2)(b) – Parking Lots* to allow the parking lot to be located between the front of the building and West Lake Street. The proposed project is within the High-Density Mixed-Use (H-M-N) zone district and is subject to an administrative (Type 1) review process.

APPLICANT: Cathy Mathis
TB Group
444 Mountain Ave.
Berthoud, CO 80513

OWNER: Colorado State University Research Foundation
PO Box 483
Fort Collins, CO 80522

RECOMMENDATION: Approval

EXECUTIVE SUMMARY

The NEC Lake and Shields PDP complies with the applicable requirements of the City of Fort Collins Land Use Code (LUC), more specifically:

- The PDP complies with the applicable review procedures of Division 2.2.
- The PDP complies with all applicable High-Density Mixed-Use (H-M-N) zone standards of Division 4.10, provided that the modification to *Section 4.10(E)(2)(b) – Parking Lots* is approved.
- The Modification of Standard to LUC *Section 4.10(E)(2)(b) – Parking Lots* meets the requirements of Division 2.8 and is not detrimental to the public good.

- The PDP complies with all applicable General Development Standards located in Article 3 of the Land Use Code.

COMMENTS:

1. Background:

The surrounding zoning and land uses are as follows:

Direction	Zone District	Existing Land Uses
North	High Density Mixed-Use Neighborhood (H-M-N)	Residential
South	High Density Mixed-Use Neighborhood (H-M-N)	Residential
East	Neighborhood Conservation Low Density (N-C-L)	Residential
West	Colorado State University Campus	University parking

Land Use History:

- In 1957, the property was originally annexed into the City of Fort Collins as part of the West Prospect Consolidated annexation.

- The property is currently vacant and undeveloped. The property included four single-family buildings, each located on a separate lot, which were removed through the City demolition permit process.

2. Compliance with Applicable H-M-N Standards:

The project complies with all applicable H-M-N standards in Article 4, with the following comments provided:

A. Section 4.10(B)(2)(c)(4) – Permitted Uses

Child care centers are a permitted use in the H-M-N District subject to a Type 1 administrative review.

B. Section 4.10(D) – Land Use Standards

The project is in compliance with the applicable standards of this section:

- The proposed building is one-story in height, with a five-story maximum building height permitted.

- The project complies with all building setbacks: fifteen (15) feet from the arterial street (South Shields); nine (9) feet from non-arterial streets (James Court and West Lake Street); five (5) feet from the side property line to the east.

A. Section 4.5(E)(1) – Development Standards – Buildings.

1) Section 4.5(E)(1)(a) Doorways Facing Streets. New buildings shall provide doorways facing the street, at grade level or slightly elevated.

Standard Met. The proposed building provides entrance doorways facing West Lake and secondary doorways facing South Shields.

2) 4.5(E)(1)(b) Relationship of Doorways to Streets. If the street is a nonarterial street, then such doorways required under subsection (a) above shall be principal entrances with sidewalk access to the street. If the street is an arterial street, then such doorways may be secondary (e.g. for patio or deck access only).

Standard Met. The proposed building provides a primary entrance facing West Lake and secondary building entrances facing South Shields for access to the outdoor play areas.

3) 4.5(E)(1)(c) Front Yards. Building design, in conjunction with site design, shall include structured elements to mark the transition from the public street to doorways. Examples of such elements are porches, pediments, pergolas, low walls or fencing, railings, pedestrian light fixtures and hedges.

Standard Met. Entrance canopies are provided for all street-facing entrances including a primary entrance feature facing West Lake and a secondary sheltering canopies above the entrances facing South Shields.

4) 4.5(E)(1)(d) Roof Form. Buildings shall have either: 1) sloped roofs, or 2) combined flat and sloped roofs, provided that the sloped portion(s) forms a substantial part of the building and is related to the street facade, the integral structure and building entries.

Standard Met. Sloped roofs are provided with the proposed building design. A projecting gable roof form is provided along the west and north sides of the building to match the entrance gable provided along the south façade. This provides additional architectural visual interest around all public facing portions of the building.

5) 4.5(E)(1)(e) Facade Variations. Buildings shall be articulated with projections, recesses, covered doorways, balconies, covered box or bay windows and/or other similar features, dividing large facades into human-scaled proportions that reflect single-family dwellings nearby and avoiding repetitive monotonous, undifferentiated wall planes.

Standard Met. The proposed building is articulated on all sides with façade projections, recesses, and covered doorways in a manner that meets this requirement.

6) *4.5(E)(1)(f) Outdoor Activity. Buildings and extensions of buildings shall be designed to form outdoor spaces such as balconies, terraces, patios, decks or courtyards.*

Standard Met. Outdoor play areas are provided around the perimeter of the building. Low retaining walls are provided along portions of the Shields Street frontage to provide an architectural form around these outdoor spaces along the public street, in lieu of the building extending closer to the street to form these spaces. The location and extent of the landscape walls are adequate to meet the minimum requirement of this section.

B. 4.5(E)(2) Site Design.

1) 4.5(E)(2)(a) Street Sidewalks. Developments with new construction or with additions which exceed twenty-five (25) percent of the gross floor area of the existing structure shall include replacement of all existing substandard sidewalks with sidewalks which comply with the current regulations of the City.

Standard Met. Public sidewalks around the perimeter of the project are proposed to be replaced in compliance with City design requirements.

2) 4.5(E)(2)(b) Parking Lots. Development plans shall be arranged so that any new parking lots or other vehicle use areas are located in side or rear yards, not in front yards.

This standard is addressed through a Modification request which is discussed on subsequent pages of this staff report.

3. Compliance with Article 3 of the Land Use Code – General Development Standards

The project complies with all applicable General Development Standards with the following comments provided:

A. Section – 3.2.1 Landscaping and Tree Protection

1) *Section 3.2.1(D)(1)(c) Full tree stocking.*

Canopy shade trees, evergreen trees and ornamental trees are provided around the perimeter of the proposed building in accordance with the minimum standards of this section.

2) Section 3.2.1(D)(2) Street trees.

Street trees are provided at approximately 30 and 40-foot intervals along the project's street frontages to the north, south and west in accordance with the

standards of this section. In accordance with section *3.2.1(F) Tree Protection and Replacement,* significant trees along Shields Street are protected, and a tree mitigation plan is provided which has been reviewed by City Forestry staff.

3) *Section 3.2.1(D)(3) Minimum Species Diversity.*

The project provides not more than 15% of any one tree species in compliance with this standard.

4) *Sections 3.2.1(E)(4) Parking Lot Perimeter Landscaping and 3.2.1(E)(5) Parking Lot Interior Landscaping.*

- Perimeter and interior landscaping are provided in accordance with the minimum standards of this section. Public views of the parking lot and perimeter trash enclosure are adequately screened. Interior parking islands are provided at the ends of all parking bays, with interior trees provided to meet the parking lot interior standards.
- A parking lot setback is provided from the Shields Street right-of-way in accordance with Section 3.2.2(J), which requires a 15' minimum average of the entire landscaped setback area, and a minimum width of 5 feet at any point. A 21.5' landscape setback is provided.
- Perimeter landscape screening provided is continuous, along 100% of the parking lot frontage, in excess of the minimum 70% requirements:

  Screening from the street and all nonresidential uses shall consist of a wall, fence, planter, earthen berm, plant material or a combination of such elements, each of which shall have a minimum height of thirty (30) inches. Such screening shall extend a minimum of seventy (70) percent of the length of the street frontage of the parking lot and also seventy (70) percent of the length of any boundary of the parking lot that abuts any nonresidential use.

Section 3.2.1(E)(5) *Parking Lot Interior Landscaping* requires that landscaped islands with canopy shade trees be evenly distributed through the project:

3.2.1(E)(5)(b) Maximized Area of Shading. Landscaped islands shall be evenly distributed to the maximum extent feasible. At a minimum, trees shall be planted at a ratio of at least <u>one (1) canopy shade tree per one hundred fifty (150) square feet of internal landscaped area</u> with a landscaped surface of turf, ground cover perennials or mulched shrub plantings.

3.2.1(E)(5)(b) (c) Landscaped Islands. In addition to any pedestrian refuge areas, <u>each landscaped island shall include one (1) or more canopy shade trees</u>, be of length greater than eight <u>(8) feet in its smallest dimension</u>, include at least eighty (80) square feet of ground area per tree to allow for root aeration, and have raised concrete curbs.

- 6% interior landscaping is required or 999 square feet. 1,544 square feet is provided.

- Parking lot island landscaping areas are at least 8 feet wide.
- Six interior parking lot trees are provided, which satisfies the *Maximized Area of Shading* requirement.

5) *Section 3.2.1(E)(1) Buffering Between Incompatible Uses and Activities.*

   This section states: *In situations where the decision maker determines that the arrangement of uses or design of buildings does not adequately mitigate conflicts reasonably anticipated to exist between dissimilar uses, site elements or building designs, one (1) or more of the following landscape buffering techniques shall be used to mitigate the conflicts.*

   (a) Separation and screening with plant material: planting dense stands of evergreen trees, canopy shade trees, ornamental trees or shrubs;

   (b) Integration with plantings: incorporating trees, vines, planters or other plantings into the architectural theme of buildings and their outdoor spaces to subdue differences in architecture and bulk and avoid harsh edges;

   (c) Establishing privacy: establishing vertical landscape elements to screen views into or between windows and defined outdoor spaces where privacy is important, such as where larger buildings are proposed next to side or rear yards of smaller buildings;

   (d) Visual integration of fences or walls: providing plant material in conjunction with a screen panel, arbor, garden wall, privacy fence or security fence to avoid the visual effect created by unattractive screening or security fences;

   (e) Landform shaping: utilizing berming or other grade changes to alter views, subdue sound, change the sense of proximity and channel pedestrian movement.

6) *Section 3.2.1(H) Placement and Interrelationship of Required Landscape Plan Elements.*

   This section states: *In approving the required landscape plan, the decision maker shall have the authority to determine the optimum placement and interrelationship of required landscape plan elements such as trees, vegetation, turf, irrigation, screening, buffering and fencing, based on the following criteria:*

   (1) protecting existing trees, natural areas and features;

   (2) enhancing visual continuity within and between neighborhoods;

   (3) providing tree canopy cover;

   (4) creating visual interest year round;

   (5) complementing the architecture of a development;

   (6) providing screening of areas of low visual interest or visually intrusive site elements;

(7) establishing an urban context within mixed-use developments;

(8) providing privacy to residents and users;

(9) conserving water;

(10) avoiding reliance on excessive maintenance;

(11) promoting compatibility and buffering between and among dissimilar land uses;

(12) establishing spatial definition.

To address the two sections described above, the project provides landscaping, fencing and landscape walls along Shields Street, providing an adequate transition along the building frontage and perimeter play areas. The purpose of these elements is to:

- Provide visual interest along the Shields Street right-of way for the benefit of the public.
- Provide a planting bed of adequate depth, height and variety to provide buffering from the arterial street for the benefit of children playing in the areas west of the building along the street frontage.
- Provide visual buffering and softening of public views towards the play areas located along Shields Street, in lieu of providing a traditional architectural front façade and complementary building foundation landscaping along Shields Street.

B. Section 3.2.2 – Access, Circulation and Parking

In conformance with the *Purpose, General Standard, and Development Standards* described in this section, the parking and circulation system provided with the project is well designed with regard to safety, efficiency and convenience for vehicles, bicycles, pedestrians and transit, both within the development and to and from surrounding areas.

All vehicular parking dimensional requirements of this section are met. Bicycle and handicap parking are provided in locations and quantities in accordance with the standards of this section.

The development proposal satisfies the parking requirement for the child care use as set forth in Section 3.2.2(K)(1)(H) of the Land Use Code:

> *Schools, Places of Worship or Assembly and Child Care Centers: For each school, place of worship or assembly and child care center, there shall be one (1) parking space per four (4) seats in the auditorium or place of worship or assembly, or two (2) parking spaces per three (3) employees, or <u>one (1) parking space per one thousand (1,000) square feet of floor area</u>, whichever requires the greatest number of parking spaces. In the event that a school, place of worship or assembly, or child care center is located adjacent to uses such as retail, office, employment or industrial uses, and the mix of uses creates staggered peak periods of parking demand, and the adjacent landowners have entered into a shared parking agreement, then the maximum number of parking spaces allowed for a place of worship or assembly shall be one (1)*

parking space per four (4) seats in the auditorium or place of worship or assembly, and the maximum number of parking spaces allowed for a school or child care center shall be three (3) spaces per one thousand (1,000) square feet of floor area. When staggered peak periods of parking demand do not exist with adjacent uses such as retail, office, employment or industrial uses, then the maximum number of parking spaces allowed for a place of worship or assembly shall be one (1) parking space per three (3) seats in the auditorium or place of worship or assembly, and the maximum number of parking spaces allowed for a school or child care center shall be four (4) spaces per one thousand (1,000) square feet of floor area.

The parking standards require both a minimum and a maximum parking (underlined above for emphasis). Both standards are met:

- Total Building: 10,925 square feet
- Parking Proposed: 41 spaces
- Minimum required parking: 11 spaces (1 space per 1,000 SF)
- Maximum parking permitted: 43 spaces (4 spaces per 1,000 SF)

C. Section 3.3.1 – Plat Standards

The proposed lot has direct access to the public street system in accordance with all plat standards. The layout of right-of way improvements, driveways, utilities, drainage facilities, and other services are designed in a manner that enhances an interconnected system within and between adjacent developments. The plat demonstrates proper dedication of public rights-of-way, drainage easements and utility easements that are needed to serve the area being developed.

D. Section 3.5.3 Mixed-Use, Institutional and Commercial Buildings

- A direct sidewalk connection is provided from South Shields Street to the building's main entrance in accordance with 3.5.3(C);
- The building form provides a residential architectural style with a level of quality that satisfies the commercial building requirements of this section. The required variation in massing and wall articulation is provided in conformance with Section 3.5.3(E)(2);
- All facades are subdivided and proportioned using features such as windows, secondary entrance doors, sheltering entrance canopies and appropriate material patterns in conformance with Section 3.5.3(E)(3);
- Entrances are clearly identified and articulated with an entrance canopy as a sheltering element and with a change in mass related to the building entrance in conformance with Section 3.5.3(E)(4);
- Variations in massing with juxtaposed materials and forms are provided. Varied patterns of recesses, projections, roof overhangs and entrance canopies provide vertical and horizontal interest, breaking down the overall scale of the building in conformance with Section 3.5.3(E)(6).

E. Section 3.8.4 - Child Care Center Regulations

This section requires a minimum outdoor play area for Child Care Centers as follows:

Minimum Outdoor Play Area for a Child Care Center	
15 children or less	1,200 square feet
more than 15 children	75 square feet per child for 33% of the child capacity of the center

- The project anticipates a maximum capacity of 188 children.
- 33% of this capacity is 62 children.
- 75 square feet per 62 children = 4,653 square feet of play area required.
- 8,237 square feet of play area is provided, in accordance with the minimum.

4. <u>Modification of Standard</u>

Land Use Code Modification Criteria:

"The decision maker may grant a modification of standards only if it finds that the granting of the modification would not be detrimental to the public good, and that:

(1) the plan as submitted will promote the general purpose of the standard for which the modification is requested equally well or better than would a plan which complies with the standard for which a modification is requested; or

(2) the granting of a modification from the strict application of any standard would, without impairing the intent and purpose of this Land Use Code, substantially alleviate an existing, defined and described problem of city-wide concern or would result in a substantial benefit to the city by reason of the fact that the proposed project would substantially address an important community need specifically and expressly defined and described in the city's Comprehensive Plan or in an adopted policy, ordinance or resolution of the City Council, and the strict application of such a standard would render the project practically infeasible; or

(3) by reason of exceptional physical conditions or other extraordinary and exceptional situations, unique to such property, including, but not limited to, physical conditions such as exceptional narrowness, shallowness or topography, or physical conditions which hinder the owner's ability to install a solar energy system, the strict application of the standard sought to be modified would result in unusual and exceptional practical difficulties, or exceptional or undue hardship upon the owner of such property, provided that such difficulties or hardship are not caused by the act or omission of the applicant; or

(4) the plan as submitted will not diverge from the standards of the Land Use Code that are authorized by this Division to be modified except in a nominal, inconsequential way when considered from the perspective of the entire development plan, and will continue to advance the purposes of the Land Use Code as contained in Section 1.2.2.

Any finding made under subparagraph (1), (2), (3) or (4) above shall be supported by specific findings showing how the plan, as submitted, meets the requirements and criteria of said subparagraph (1), (2), (3) or (4).

Modification of Standard Request to Section 4.10(E)(2)(b) – Parking Lots.

Modification Description:

The Applicant requests that the parking lot be located in the front yard, south of the building, between the building front and West Lake Street.

Land Use Code Standard Proposed to be Modified:

Section 4.10(E)(2)(b) – Parking Lots. b) Parking Lots. Development plans shall be arranged so that any new parking lots or other vehicle use areas are located in side or rear yards, not in front yards.

Summary of Applicant's Justification:

The Applicant has provided a modification request attached to this staff report.

The applicant provides justification in the attached request that the plan as submitted will promote the general purpose of the standard for which the modification is requested equally well or better than would a plan which complies with the standard for which a modification and that the granting of the modification would not be detrimental to the public good.

Staff Comments:

Staff finds that the request for a Modification of Standard to *4.10(E)(2)(b) – Parking Lots* is justified by the applicable standards in 2.8.2(H)(1).

A. The granting of the Modification would not be detrimental to the public good and;

B. The project design satisfies Criteria 4 (2.8.2(H)(1): *The plan as submitted will promote the general purpose of the standard for which the modification is requested equally well or better than would a plan which complies with the standard for which a modification is requested.*

   The intent of the standard is to encourage projects in the H-M-N zone to define the street edge with building and courtyard space, as opposed to defining the street edge and street intersections with parking lots, so that parking along public streets is subordinate to appropriately designed street-facing building facades. Two design strategies are anticipated to achieve this intent:

- Locating parking to the side or rear of the building, and not along the front of the building, so that the building front is located directly along the street frontage;

- Defining the street edge and street intersections with building architecture and prominent street-facing architectural elements such as main entrance doors, entrance canopies and other human-scaled architectural features (LUC 3.5.3 and LUC 4.10(E)(1)(a-f), with no parking between these facade elements and the streets;

Dovetailing with this intent, it's anticipated that most development in the H-M-N zone will be multi-story, and a greater building coverage than what is proposed with this child care center.

The standard is not easily adaptable to the needs of a child care center including the need for a drop-off area in front of the building and the necessary play areas around the perimeter of the building. Additionally, the applicant has explained that the overall shape and internal layout of the building footprint cannot be easily reconfigured to adapt differently to the site context.

The project design provides several elements to mitigate for the proposed building and parking orientation:

- Continuous (100 percent) perimeter parking lot landscaping along Shields and Lake Streets, beyond the minimum of seventy (70) percent of the length of the street frontage of the parking lot as required by the *Parking Lot Perimeter Landscaping* standards in LUC 3.2.1(E)(4)(b).
- Additional landscape setback depth along Lake Street. And average of ten feet and minimum of 5 feet is required per LUC 3.2.2(J). The project proposes 38 feet.
- Adequate landscape shrub bed depth along Shields Street that provides substantial parking lot perimeter screening along Shields Street, while also accommodating a new detached sidewalk that meanders to work with existing trees along the Shields Street frontage.
- Architectural features are provided along the west side of the building, including doors with glazing and entrance canopies above the doors which add visual interest to this street-facing façade.

Due to these mitigating factors, staff finds that the proposed design will promote the general purpose of the standard for which the modification is requested equally well or better than would a plan which complies with the standard due to the increased landscape screening and increased parking setback provided by the plan which adequately mitigates the parking lot location. Additionally, the overall design is not detrimental to the public good because the landscape plan and building design provide an adequately designed architectural and landscape transition along the Shields Street frontage with design elements that add visual interest to the street-facing façade including entrance doors, entrance features, landscape screening and decorative fencing.

5. Neighborhood Meeting

As a Type 1 use, a City neighborhood meeting was not required for the proposal.

6. Findings of Fact/Conclusion

In evaluating the NEC Lake and Shields PDP, staff makes the following finding of fact:

A. The PDP complies with the applicable review procedures of Division 2.2.

B. The PDP complies with all applicable High-Density Mixed-Use (H-M-N) zone standards of Division 4.10, provided that the modification to *Section 4.10(E)(2)(b) – Parking Lots* is approved.

C. The Modification of Standard to LUC *Section 4.10(E)(2)(b) – Parking Lots* to allow the parking lot to be located in the front yard meets the requirements of Division 2.8.2(H). The granting of the Modification would not be detrimental to the public good and the request satisfies Criteria (2.8.2(H)(1): *The plan as submitted will promote the general purpose of the standard for which the modification is requested equally well or better than would a plan which complies with the standard for which a modification is requested* because: additional landscaped parking setback depth is provided along Lake Street, continuous parking lot perimeter landscape screening is provided along the public streets, and architectural features along the west side of the building are provided to add visual interest to this street-facing façade.

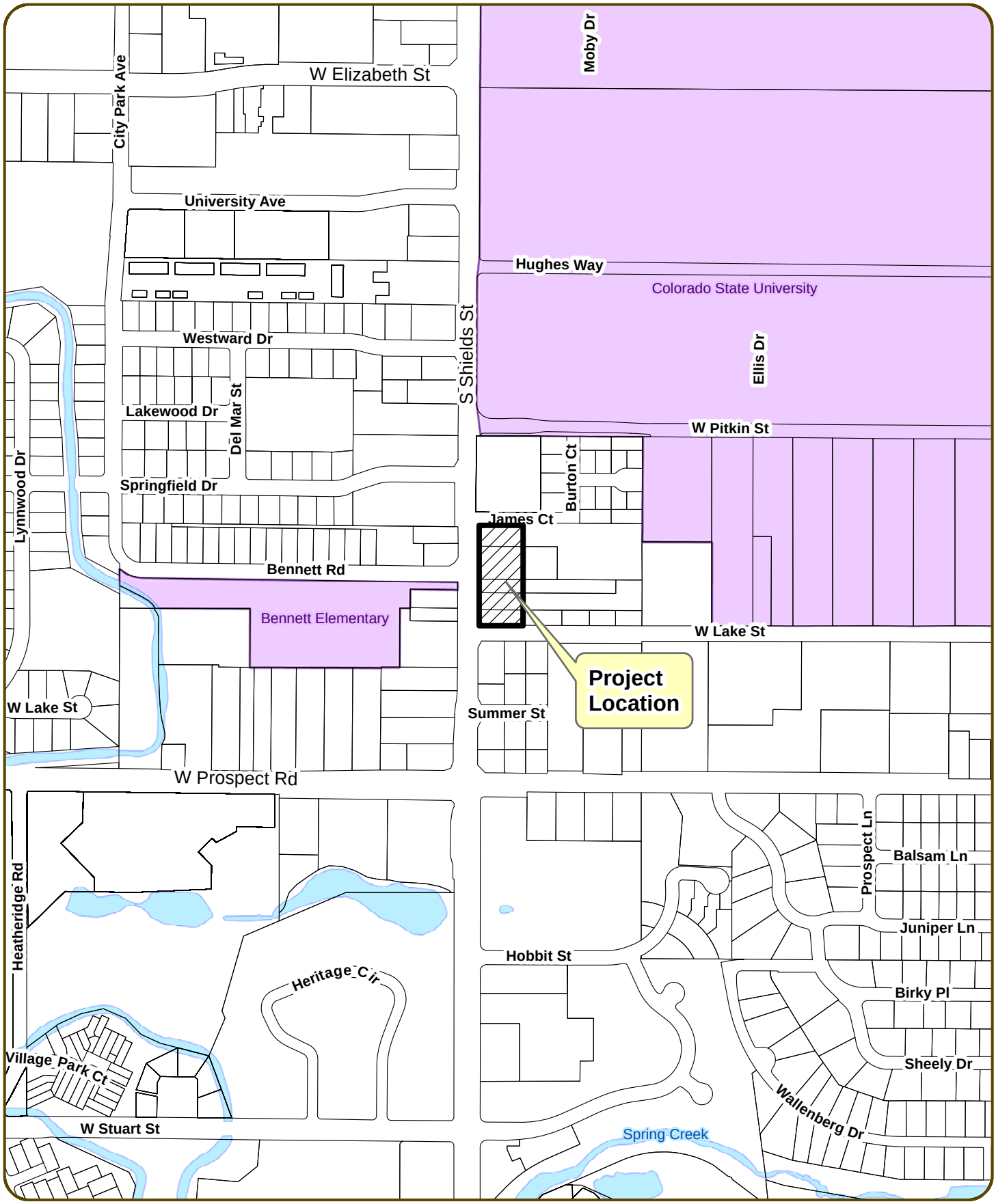
D. The PDP complies with all applicable General Development Standards located in Article 3 of the Land Use Code.

RECOMMENDATION:

Approval of the NEC Lake and Shields Project Development Plan, PDP#180012 and Modification of Standard based on the Findings of Fact described in this staff report.

ATTACHMENTS

1. Vicinity Map
2. Site Plan
3. Landscape Plan
4. Building Elevations
5. Plat
6. Lighting Plans
7. Utility Plans
8. Applicant's Modification of Standard request
9. Applicant's Statement of Planning Objectives
10. Traffic Impact Study



NEC Lake & Shields Child Care Center Location Map

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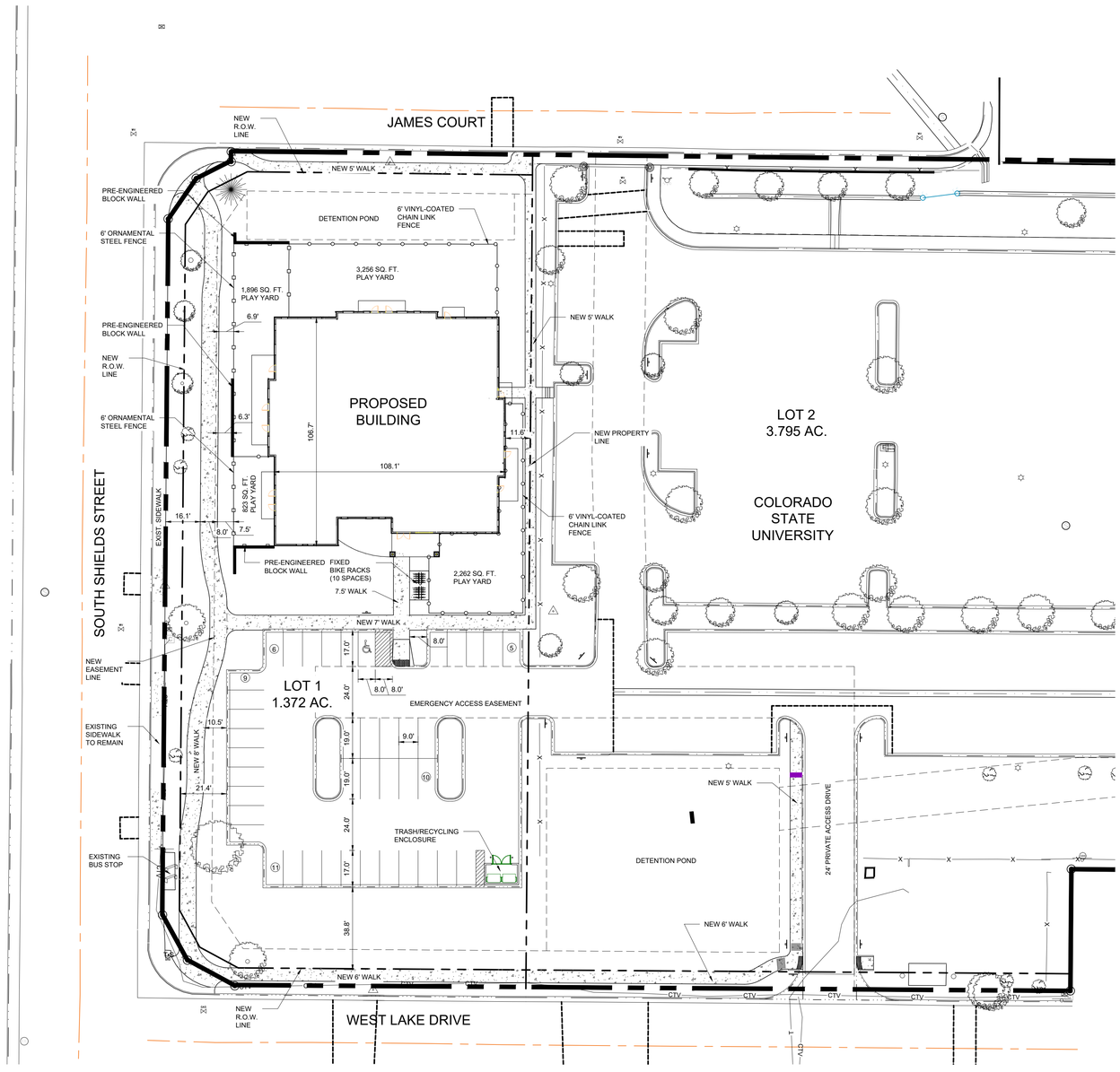


Land-Use Statistics:

EXISTING ZONING:	HMN - HIGH DENSITY MIXED-USE NEIGHBORHOOD
GROSS LAND AREA:	65,340 SQ .FT. 1.5 ACRES
NUMBER OF BUILDINGS:	1
LAND USE:	CHILD CARE CENTER
TOTAL BUILDING GROSS S.F.:	10,925 SQ. FT.
MAX. STORIES:	1

CHILD CARE CENTER CALCULATIONS:

PER LUC SECTION 3.8.4(A):

TOTAL NUMBER OF CHILDREN: 188 MAX.

MINIMUM OUTDOOR PLAY AREA FOR MORE THAN 15 CHILDREN = 75 SQ. FT. PER CHILD OF 33% OF THE CHILD CAPACITY OF THE CENTER.

188 X 33% = 62 X 75 = 4,653 SQ. FT. REQUIRED.

OUTDOOR PLAY AREA PROVIDED: 8,237 SQ. FT.

OFF-STREET PARKING:

PER LUC SECTION 3.2.2(K)(h):

CHILD CARE CENTERS:

ONE (1) PARKING SPACE PER ONE THOUSAND (1,000) SQ. FT. OF FLOOR AREA = 10,638 / 1,000 = 11 SPACES REQUIRED

PROVIDED:

STANDARD (9 X 17)	40
ACCESSIBLE	1
TOTAL	41

BICYCLE PARKING :

REQUIRED:
SCHOOLS/PLACES OF WORSHIP OR ASSEMBLY AND CHILD CARE CENTERS @ 1 SPACE PER 4,000 SQ. FT. = 3 SPACES

PROVIDED:
FIXED RACKS 10 SPACES

GROSS AREA COVERAGE:

	SQUARE FEET	ACRES	% OF
BUILDING FOOTPRINTS	10,925	0.25	18.2%
LANDSCAPE AREA	21,703	0.50	36.5%
PAVED DRIVES AND PARKING	16,469	0.38	27.8%
SIDEWALKS	10,638	0.24	17.5%
TOTAL AREA:	59,745	1.37	100%

Legal Description:

LOT 1, NEC LAKE AND SHIELDS

Owner's Certification of Approval:

THE UNDERSIGNED DOES/DO HEREBY CERTIFY THAT I/WE ARE THE LAWFUL OWNERS OF REAL PROPERTY DESCRIBED ON THIS SITE PLAN AND DO HEREBY CERTIFY THAT I/WE ACCEPT THE CONDITIONS AND RESTRICTIONS SET FORTH ON SAID SITE PLAN.

IN WITNESS WHEREOF, WE HAVE HEREUNTO SET OUR HANDS AND SEALS THIS THE _____ DAY OF _____, 2018.

OWNER:

BY:_____

NOTARIAL CERTIFICATE

STATE OF _____)
ss.
COUNTY OF _____)

THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS _____DAY OF ____, 2018, BY

_____

MY COMMISSION EXPIRES:_____

_____
NOTARY PUBLIC

Planning Approval:

BY THE DIRECTOR OF COMMUNITY DEVELOPMENT AND NEIGHBORHOOD SERVICES OF THE CITY OF FORT COLLINS, COLORADO THIS_____DAY OF _____ A.D., 20_____.

_____
DIRECTOR OF COMMUNITY DEVELOPMENT AND NEIGHBORHOOD SERVICES

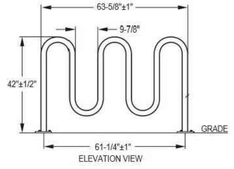
Bike Rack Detail:

BELSON OUTDOORS

111 North River Road
North Aurora, IL 60542
Phone: (800) 323-5664
Fax: (630) 897-0573
sales@belson.com

Model # HW238-7-SF-P Dimension Sheet

HEAVY-DUTY WINDER | 5 LOOPS 7 BIKES



Vicinity Map:

NOT TO SCALE NORTH

Site Plan Notes:

1. REFER TO FINAL UTILITY PLANS FOR EXACT LOCATIONS OF STORM DRAINAGE STRUCTURES, UTILITY MAINS AND SERVICES.
2. REFER TO THE FINAL CIVIL ENGINEERING PLANS FOR DETAILED INFORMATION REGARDING PROPOSED TOPOGRAPHY, UTILITY AND STREET IMPROVEMENTS.
3. REFER TO THE SUBDIVISION PLAT AND UTILITY PLANS FOR EXACT LOCATIONS, AREAS AND DIMENSIONS OF ALL EASEMENTS, LOTS, TRACTS, STREETS, WALKS AND OTHER SURVEY INFORMATION.
4. ALL CONSTRUCTION WITH THIS DEVELOPMENT PLAN MUST BE COMPLETED IN ONE PHASE UNLESS A PHASING PLAN IS SHOWN WITH THESE PLANS. IMPROVEMENTS WITHIN THE 80-FOOT BUFFER ARE TO BE CONSTRUCTED BY MAVD. REFER TO BDR150001.
5. ALL ROOFTOP MECHANICAL EQUIPMENT MUST BE SCREENED FROM VIEW FROM ADJACENT PROPERTY AND PUBLIC STREETS. IN CASES WHERE BUILDING PARAPETS DO NOT ACCOMPLISH SUFFICIENT SCREENING, THEN FREE-STANDING SCREEN WALLS MATCHING THE PREDOMINANT COLOR OF THE BUILDING SHALL BE CONSTRUCTED.
6. ALL GROUND MOUNTED MECHANICAL EQUIPMENT MUST BE SCREENED FROM VIEW FROM ADJACENT PROPERTY AND PUBLIC STREETS. OTHER MINOR EQUIPMENT SUCH AS CONDUIT, METERS, PLUMBING VENTS SHALL BE SCREENED OR PAINTED TO MATCH SURROUNDING BUILDING SURFACES. GROUND MOUNTED EQUIPMENT INCLUDES BUT IS NOT LIMITED TO CONDENSING UNITS, GAS AND ELECTRICAL METERS, PHONE AND CABLE PEDESTALS.
7. ALL LIGHTING FIXTURE ILLUMINATION LEVELS PROVIDED WITH THE DEVELOPMENT SHALL COMPLY WITH THE FOOT-CANDLE REQUIREMENTS IN SECTION 3.2.4 OF THE LAND USE CODE. ALL LIGHTING FIXTURES PROVIDED WITH THE DEVELOPMENT SHALL USE A CONCEALED, FULLY SHIELDED LIGHT SOURCE AND SHALL FEATURE SHARP CUT-OFF CAPABILITY SO AS TO MINIMIZE UP-LIGHT, SPILL LIGHT, GLARE AND UNNECESSARY DIFFUSION.
8. SIGNAGE AND ADDRESSING ARE NOT PERMITTED WITH THESE FINAL PLANS AND MUST BE APPROVED BY SEPARATE CITY PERMIT PRIOR TO CONSTRUCTION. SIGNS MUST COMPLY WITH CITY SIGN CODE UNLESS A SPECIFIC VARIANCE IS GRANTED BY THE CITY.
9. FIRE HYDRANTS MUST MEET OR EXCEED POUDRE FIRE AUTHORITY STANDARDS. ALL BUILDINGS MUST PROVIDE AN APPROVED FIRE EXTINGUISHING SYSTEM.
10. ALL BIKE RACKS PROVIDED MUST BE PERMANENTLY ANCHORED TO CONCRETE AND NOT INTERFERE WITH WALKWAYS AND LANDSCAPING.
11. ALL SIDEWALKS AND RAMPS MUST CONFORM TO CITY STANDARDS. ACCESSABLE RAMPS MUST BE PROVIDED AT ALL STREET AND DRIVE INTERSECTIONS AND AT ALL DESIGNATED ACCESSABLE PARKING SPACES. ACCESSABLE PARKING SPACES MUST SLOPE NO MORE THAN 1:48 IN ANY DIRECTION. ALL ACCESSIBLE ROUTES MUST SLOPE NO MORE THAN 1:20 IN DIRECTION OF TRAVEL AND WITH NO MORE THAN 1:48 CROSS SLOPE.
12. PRIVATE CONDITIONS, COVENANTS, AND RESTRICTIONS (CC&R'S), OR ANY OTHER PRIVATE RESTRICTIVE COVENANT IMPOSED ON LANDOWNERS WITHIN THE DEVELOPMENT, MAY NOT BE CREATED OR ENFORCED HAVING THE EFFECT OF PROHIBITING OR LIMITING THE INSTALLATION OF XERISCAPE LANDSCAPING, SOLAR/PHOTO-VOLTAIC COLLECTORS (IF MOUNTED FLUSH UPON ANY ESTABLISHED ROOF LINE), CLOTHES LINES (IF LOCATED IN BACK YARDS), ODOR-CONTROLLED COMPOST BINS, OR WHICH HAVE THE EFFECT OF REQUIRING THAT A PORTION OF ANY INDIVIDUAL LOT BE PLANTED IN TURF GRASS.
13. ANY DAMAGED CURB, GUTTER AND SIDEWALK EXISTING PRIOR TO CONSTRUCTION, AS WELL AS STREETS, SIDEWALKS, CURBS AND GUTTERS, DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT, SHALL BE REPLACED OR RESTORED TO CITY OF FORT COLLINS STANDARDS AT THE DEVELOPER'S EXPENSE PRIOR TO THE ACCEPTANCE OF COMPLETED IMPROVEMENTS AND/OR PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.
14. UTILITY METERS, ELECTRICAL PANELS, GAS VALVES, PHONE AND CABLE PEDESTALS AND OUTDOOR CONDENSING UNITS WILL LIKELY BE LOCATED ALONG THE EAST ELEVATION FACING LADY MOON DRIVE. SINCE THE EXACT LOCATION AND EXTENT OF THESE APPURTENANCES ARE NOT YET DETERMINED, THESE VARIOUS DEVICES MUST BE SCREENED BY LANDSCAPING OR BY A SCREEN WALL OR ANY COMBINATION THEREOF. ADJUSTMENTS IN THE FIELD MAY BE NECESSARY TO ACHIEVE COMPLIANCE PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

Legend:

- HANDICAP PARKING STALL
- EASEMENT LINE
- PROPERTY LINE
- BIKE RACK
- 6' ORNAMENTAL STEEL FENCE
- 6' VINYL-COATED CHAIN LINK FENCE
- PRE-ENGINEERED BLOCK WALL
- VAN ACCESSIBLE PARKING SPACE SIGN

0 30' 45' 60'
SCALE 1" = 30'-0"

NORTH

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SEAL

PROJECT TITLE

NEC LAKE & SHIELDS

FORT COLLINS
COLORADO

PREPARED FOR

OWNER:

Colorado State University Research Foundation

REVISIONS	DATE
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DATE

August 22, 2018

SHEET TITLE

Site Plan

SHEET INFORMATION

Sheet Number: 1

Of: 1

General Landscape Notes

1. PLANT QUALITY: ALL PLANT MATERIAL SHALL BE A-GRADE OR NO. 1 GRADE - FREE OF ANY DEFECTS, OF NORMAL HEALTH, HEIGHT, LEAF DENSITY AND SPREAD APPROPRIATE TO THE SPECIES AS DEFINED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. ALL TREES SHALL BE BALL AND BURLAP OR EQUIVALENT.

2. IRRIGATION: ALL LANDSCAPE AREAS WITHIN THE SITE INCLUDING TURF, SHRUB BEDS AND TREE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC IRRIGATION SYSTEM. THE IRRIGATION PLAN MUST BE REVIEWED AND APPROVED BY THE CITY OF FORT COLLINS WATER UTILITIES DEPARTMENT PRIOR TO THE ISSUANCE OF A BUILDING PERMIT. ALL TURF AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC POP-UP IRRIGATION SYSTEM. ALL SHRUB BEDS AND TREES, INCLUDING IN NATIVE SEED AREAS, SHALL BE IRRIGATED WITH AN AUTOMATIC DRIP (TRICKLE) IRRIGATION SYSTEM, OR WITH AN ACCEPTABLE ALTERNATIVE APPROVED BY THE CITY WITH THE IRRIGATION PLANS. THE IRRIGATION SYSTEM SHALL BE ADJUSTED TO MEET THE WATER REQUIREMENTS OF THE INDIVIDUAL PLANT MATERIAL.

3. TOPSOIL: TO THE MAXIMUM EXTENT FEASIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION ACTIVITY SHALL BE CONSERVED FOR LATER USE ON AREAS REQUIRING REVEGETATION AND LANDSCAPING.

4. SOIL AMENDMENTS: SOIL AMENDMENTS SHALL BE PROVIDED AND DOCUMENTED IN ACCORDANCE WITH CITY CODE SECTION 12-132. THE SOIL IN ALL LANDSCAPE AREAS, INCLUDING PARKWAYS AND MEDIANS, SHALL BE THOROUGHLY LOOSENED TO A DEPTH OF NOT LESS THAN EIGHT(8) INCHES AND SOIL AMENDMENT SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL OF ALL LANDSCAPE AREAS TO A DEPTH OF AT LEAST SIX(6) INCHES BY TILLING, DISCING OR OTHER SUITABLE METHOD, AT A RATE OF AT LEAST THREE (3) CUBIC YARDS OF SOIL AMENDMENT PER ONE THOUSAND (1,000) SQUARE FEET OF LANDSCAPE AREA. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, A WRITTEN CERTIFICATION MUST BE SUBMITTED TO THE CITY THAT ALL PLANTED AREAS, OR AREAS TO BE PLANTED, HAVE BEEN THOROUGHLY LOOSENED AND THE SOIL AMENDED, CONSISTENT WITH THE REQUIREMENTS SET FORTH IN SECTION 12-132.

5. INSTALLATION AND GUARANTEE: ALL LANDSCAPING SHALL BE INSTALLED ACCORDING TO SOUND HORTICULTURAL PRACTICES IN A MANNER DESIGNED TO ENCOURAGE QUICK ESTABLISHMENT AND HEALTHY GROWTH. ALL LANDSCAPING FOR EACH PHASE MUST BE EITHER INSTALLED OR THE INSTALLATION MUST BE SECURED WITH AN IRREVOCABLE LETTER OF CREDIT, PERFORMANCE BOND, OR ESCROW ACCOUNT FOR 125% OF THE VALUATION OF THE MATERIALS AND LABOR PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR ANY BUILDING IN SUCH PHASE.

6. MAINTENANCE: TREES AND VEGETATION, IRRIGATION SYSTEMS, FENCES, WALLS AND OTHER LANDSCAPE ELEMENTS WITH THESE FINAL PLANS SHALL BE CONSIDERED AS ELEMENTS OF THE PROJECT IN THE SAME MANNER AS PARKING, BUILDING MATERIALS AND OTHER SITE DETAILS. THE APPLICANT, LANDOWNER OR SUCCESSORS IN INTEREST SHALL BE JOINTLY AND SEVERALLY RESPONSIBLE FOR THE REGULAR MAINTENANCE OF ALL LANDSCAPING ELEMENTS IN GOOD CONDITION. ALL LANDSCAPING SHALL BE MAINTAINED FREE FROM DISEASE, PESTS, WEEDS AND LITTER, AND ALL LANDSCAPE STRUCTURES SUCH AS FENCES AND WALLS SHALL BE REPAIRED AND REPLACED PERIODICALLY TO MAINTAIN A STRUCTURALLY SOUND CONDITION.

7. REPLACEMENT: ANY LANDSCAPE ELEMENT THAT DIES, OR IS OTHERWISE REMOVED, SHALL BE PROMPTLY REPLACED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS.

8. THE FOLLOWING SEPARATIONS SHALL BE PROVIDED BETWEEN TREES/SHRUBS AND UTILITIES:

   40 FEET BETWEEN CANOPY TREES AND STREET LIGHTS
   15 FEET BETWEEN ORNAMENTAL TREES AND STREETLIGHTS
   10 FEET BETWEEN TREES AND PUBLIC WATER, SANITARY AND STORM SEWER MAIN LINES
   6 FEET BETWEEN TREES AND PUBLIC WATER, SANITARY AND STORM SEWER SERVICE LINES.
   4 FEET BETWEEN SHRUBS AND PUBLIC WATER AND SANITARY AND STORM SEWER LINES
   4 FEET BETWEEN TREES AND GAS LINES

9. ALL STREET TREES SHALL BE PLACED A MINIMUM EIGHT (8) FEET AWAY FROM THE EDGES OF DRIVEWAYS AND ALLEYS PER LUC 3.2.1(D)(2)(a).

10. PLACEMENT OF ALL LANDSCAPING SHALL BE IN ACCORDANCE WITH THE SIGHT DISTANCE CRITERIA AS SPECIFIED BY THE CITY OF FORT COLLINS. NO STRUCTURES OR LANDSCAPE ELEMENTS GREATER THAN 24" SHALL BE ALLOWED WITHIN THE SIGHT DISTANCE TRIANGLE OR EASEMENTS WITH THE EXCEPTION OF DECIDUOUS TREES PROVIDED THAT THE LOWEST BRANCH IS AT LEAST 6' FROM GRADE. ANY FENCES WITHIN THE SIGHT DISTANCE TRIANGLE OR EASEMENT MUST BE NOT MORE THAN 42" IN HEIGHT AND OF AN OPEN DESIGN.

11. THE FINAL LANDSCAPE PLAN SHALL BE COORDINATED WITH ALL OTHER FINAL PLAN ELEMENTS SO THAT THE PROPOSED GRADING, STORM DRAINAGE, AND OTHER DEVELOPMENT IMPROVEMENTS DO NOT CONFLICT WITH NOR PRECLUDE INSTALLATION AND MAINTENANCE OF LANDSCAPE ELEMENTS ON THIS PLAN.

12. MINOR CHANGES IN SPECIES AND PLANT LOCATIONS MAY BE MADE DURING CONSTRUCTION -- AS REQUIRED BY SITE CONDITIONS OR PLANT AVAILABILITY. OVERALL QUANTITY, QUALITY, AND DESIGN CONCEPT MUST BE CONSISTENT WITH THE APPROVED PLANS. IN THE EVENT OF CONFLICT WITH THE QUANTITIES INCLUDED IN THE PLANT LIST, SPECIES AND QUANTITIES ILLUSTRATED SHALL BE PROVIDED. ALL CHANGES OF PLANT SPECIES AND LOCATION MUST HAVE WRITTEN APPROVAL BY THE CITY PRIOR TO INSTALLATION.

13. ALL PLANTING BEDS SHALL BE MULCHED TO A MINIMUM DEPTH OF THREE INCHES.

Native Grass Seed Mix

NATIVE GRASS - UPLAND CITY OF FORT COLLINS MIX:

1. SEED SHALL BE AS MANUFACTURED BY ARKANSAS VALLEY SEED SOLUTIONS, 4625 COLORADO BOULEVARD, DENVER, CO 80216, (877) 957-3337.
2. SEED SHALL BE A MIXTURE THAT MATCHES THE FOLLOWING:

NON-IRRIGATED UPLAND MIX

COMMON NAME	SCIENTIFIC NAME	SEEDING RATE (PLS LBS/ACRE-DRILL RATE)
BEEPLANT	CLEOME SEEULATA	1.08
HAIRY GOLDENASTER	HETEROTHECA VILLOSA	0.36
PURPLE PRAIRIE CLOVER	DALEA PURPUREA	0.41
WALLFLOWER	ERYSIMUM ASPERUM	0.11
ANNUAL SUNFLOWER	HELIANTHUS ANNUUS	2.07
DOTTED GAYFEATHER	LIATRIS PUNCTATA	0.73
BLUE FLAX	LINUM LEWSII	0.41
PRAIRIE ASTER	MACHAERANTHERA TANACETIFLIA	0.25
MEXICAN HAT	RATIBIDA COLUMNIFERA	0.10
AMERICAN VETCH	VICIA AMERICANA	6.10
SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	0.96
BUFFALOGRASS	BOUTELOUA DACTYLOIDES	3.27
BLUE GRAMA	BOUTELOUA GRACILIS	0.22
PRAIRIE SANDREED	CALAMOVILFA LONGIFOLIA	0.67
PRAIRIE JUNEGRASS	KOELERIA MACRANTHA	0.08
NEEDLE AND THREAD	HESPEROSTIPA COMATA	1.59
SWITCH GRASS	PANICUM VIRGATUM	0.47
WESTERN WHEATGRASS	PASCOPYRUM SMITHII	1.66
SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	0.04
SIX WEEKS FESCUE	VULPIA OCTOFLORA	0.19
	TOTAL LBS/ACRE	**20.77**

3. NATIVE SEED AREAS: ADEQUATE TEMPORARY IRRIGATION WILL BE PROVIDED FOR THE ESTABLISHMENT AND MAINTENANCE FOR THESE SEEDED AREAS, AND THAT NATIVE GRASSES SHALL BE MAINTAINED IN A CONDITION OF ACCEPTABLE HEIGHT, FREE OF WEEDS, TRASH AND DEBRIS, AND SHALL NOT REPRESENT A FIRE HAZARD NOR BECOME A NUISANCE SITE FOR WATER OR WIND EROSION.
4. PREPARE SOIL AS NECESSARY AND APPROPRIATE FOR NATIVE SEED MIX SPECIES THROUGH AERATION AND ADDITION OF AMENDMENDMENTS IF NECESSARY THEN SEED IN TWO DIRECTIONS TO DISTRIBUTE SEED EVENTLY OVER ENTIRE AREA.
5. IF CHANGES ARE TO BE MADE TO SEED MIX BASED ON SITE CONDITIONS THEN APPROVAL MUST BE PROVIDED BY CITY ENVIRONMENTAL PLANNER.
6. APPROPRIATE NATIVE SEEDING EQUIPMENT WILL BE USED (STANDARD TURF SEEDING EQUIPMENT OR AGRICULTURE EQUIPMENT SHALL NOT BE USED).
7. DRILL SEED APPLICATION RECOMMENDED PER SPECIFIED APPLICATION RATE TO NO MORE THAN ½ INCH DEPTH. FOR BROADCAST SEEDING INSTEAD OF DRILL SEEDING METHOD - DOUBLE SPECIFICIED APPLICATION REFER TO NATIVE SEED MIX TABLE FOR SPECIES, PERCENTAGES AND APPLICATION RATES.
8. TREAT NATIVE SEED MIX AREA PRIOR TO INSTALLATION OF SEED WITH APPROPRIATE HERBICIDE TO PROACTIVELY MITIGATE HERBACEOUS WEED SPECIES GROWTH DURING ESTABLISHMENT PERIOD THEN AFTER APPROPRIATE TIME PERIOD APPLY NATIVE SEED AS CALLED FOR ON APPROVED PLANS.
9. AFTER SEEDING THE AREA SHALL BE COVERED WITH CRIMPED STRAW OR OTHER APPROPRIATE METHODS AND PROVIDED TEMPORARY IRRIGATION UNTIL SEED IS ESTABLISHED.
10. CONTRACTOR SHALL MONITOR SEEDED AREA FOR PROPER IRRIGATION, EROSION CONTROL, GERMINATION AND RESEEDING AS NEEDED TO ESTABLISH COVER.
11. THE APPROVED SEED MIX AREA IS INTENDED TO BE MAINTAINED IN A NATURAL-LIKE LANDSCAPE AESTHETIC. IF AND WHEN MOWING OCCURS IN NATIVE GRASS SEED MIX AREAS DO NOT MOW LOWER THAN 6-8 INCHES IN HEIGHT TO AVOID INHIBITING NATIVE PLANT GROWTH.
12. NATIVE SEED AREA WILL BE CONSIDERED ESTABLISHED WHEN SEVENTY-PERCENT TOTAL COVER IS REACHED WITH NO LARGER THAN ONE FOOT SQUARE BARE SPOTS AND/OR UNTIL DEEMED ESTABLISHED BY CITY PLANNING SERVICES.

MULCH IN ALL NATIVE SEED AREAS:

1. IMMEDIATELY FOLLOWING THE RAKING OPERATION, ADD STRAW MULCH TO THE SEEDED AREAS.
2. APPLY STRAW MULCH AT A MINIMUM OF 1.5 TONS PER ACRE OF AIR DRY MATERIAL. SPREAD STRAW MULCH UNIFORMLY OVER THE AREA WITH MECHANICAL MULCH SPREADER / CRIMPER. DO NOT MULCH WHEN WIND VELOCITY EXCEEDS 10 MPH.
3. WHEREVER THE USE OF CRIMPING EQUIPMENT IS PRACTICAL, PLACE MULCH IN THE MANNER NOTED ABOVE AND ANCHOR IT INTO THE SOIL. USE A DISC SUCH AS A MULCH TILLER, WITH A FLAT SERRATED DISC AT LEAS ½ INCH IN THICKNESS, HAVING DULL EDGES, AND SPACE NO MORE THAN 9 INCHES APART, WITH DISCS OF SUFFICIENT DIAMETER TO PREVENT THE FRAME OF THE EQUIPMENT FROM DRAGGING THE MULCH. ANCHOR MULCH A MINIMUM DEPTH OF 2 INCHES AND ACROSS THE SLOPE WHERE PRACTICAL WITH NO MORE THAN TWO PASSES OF THE ANCHORING EQUIPMENT.
4. IMMEDIATELY UPON COMPLETION OF THE MULCHING AND BINDING OPERATION, THE SEEDED AREAS SHALL BE IRRIGATED, KEEPING THE TOP 2 INCHES OF SOIL EVENLY MOIST UNTIL SEED HAS UNIFORMLY GERMINATED AND GROWN TO A HEIGHT OF 2-INCHES.
5. WATERING APPLICATION SHALL BE DONE IN A MANNER WHICH WILL PROVIDE UNIFORM COVERAGE BUT WHICH WILL NOT CAUSE EROSION, MOVEMENT, OR DAMAGE TO THE FINISHED SURFACE.

Native Seed Mix Notes

1. PREPARE SOIL AS NECESSARY AND APPROPRIATE FOR NATIVE SEED MIX SPECIES AND AS OUTLINED IN MUNICIPAL CODE 12-130 THROUGH 12-132. IN NATIVE AREAS THESE REQUIREMENTS ARE TYPICALLY SATISFIED THROUGH SOIL SAMPLES SHOWING QUALITY OF SOIL MEETS THE DEFINITION OF TOP SOIL IN CODE 12-131. THROUGH LOOSENING THE TOP 8 INCHES OF SOIL AND APPLYING 4 INCHES OF TOP SOIL THEN SOIL AMENDMENT REQUIREMENTS CAN BE FULFILLED.AFTER SOIL HAS BEEN PROPERLY PREPARED THEN SEED EVENLY

2. IN TWO DIRECTIONS TO DISTRIBUTE SEED OVER ENTIRE AREA. SEED ALL INDICATED AREAS AS SOON AS POSSIBLE AFTER COMPLETION OF GRADING OPERATIONS.

3. IF CHANGES ARE TO BE MADE TO SEED MIX BASED ON SITE CONDITIONS THEN APPROVAL MUST BE PROVIDED BY CITY ENVIRONMENTAL PLANNER.

4. APPROPRIATE NATIVE SEEDING EQUIPMENT WILL BE USED (STANDARD TURF SEEDING EQUIPMENT OR AGRICULTURE EQUIPMENT SHALL NOT BE USED).

5. GENERALLY DRILL SEED APPLICATION RECOMMENDED PER SPECIFIED APPLICATION RATE TO NO MORE THAN ½ INCH DEPTH (OR APPROPRIATE DEPTH FOR SELECTED SPECIES). WHEN USING BROADCAST SEEDING INSTEAD OF DRILL SEEDING METHOD DOUBLE SPECIFIED APPLICATION RATE. REFER TO NATIVE SEED MIX TABLE FOR SPECIES, PERCENTAGES AND APPLICATION RATES.

6. A WEED MANAGEMENT PLAN TO ENSURE THAT WEEDS ARE PROPERLY MANAGED BEFORE, DURING AND AFTER SEEDING ACTIVITIES.

7. AFTER SEEDING THE AREA SHALL BE COVERED WITH CRIMPED STRAW, JUTE MESH, OR OTHER APPROPRIATE METHODS.

8. WHERE NEEDED, TEMPORARY IRRIGATION SHOULD BE PROVIDED UNTIL SEED IS ESTABLISHED. IF IRRIGATION IS USED, THE IRRIGATION SYSTEM FOR SEEDED AREAS SHALL BE FULLY OPERATIONAL AT THE TIME OF SEEDING AND SHALL ENSURE 100% HEAD-TO-HEAD COVERAGE OVER ALL SEEDED AREAS. ALL METHODS AND REQUIREMENTS IN THE APPROVED IRRIGATION PLAN SHALL BE FOLLOWED.

9. CONTRACTOR SHALL MONITOR SEEDED AREA FOR PROPER IRRIGATION, EROSION CONTROL, GERMINATION AND RESEEDING AS NEEDED TO ESTABLISH COVER.

10. THE APPROVED SEED MIX AREA IS INTENDED TO BE MAINTAINED IN A NATURAL LIKE LANDSCAPE AESTHETIC. IF AND WHEN MOWING OCCURS IN NATIVE GRASS SEED MIX AREAS, DO NOT MOW LOWER THAN 6 TO 8 INCHES IN HEIGHT TO AVOID INHIBITING NATIVE PLANT GROWTH. GENERALLY, MOW NO MORE THAN 3 TO 4 TIMES PER YEAR DURING ESTABLISHMENT PERIOD FOR WEED MANAGEMENT WHEN NECESSARY.

11. NATIVE SEED AREA WILL BE CONSIDERED ESTABLISHED WHEN SEVENTY PERCENT VEGETATIVE COVER IS REACHED WITH NO LARGER THAN ONE FOOT SQUARE BARE SPOTS AND/OR UNTIL DEEMED ESTABLISHED BY CITY PLANNING SERVICES AND EROSION CONTROL.

12. THE DEVELOPER AND/OR LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ADEQUATE SEEDLING COVERAGE AND GROWTH AT THE TIME OF FINAL STABILIZATION, AS DEFINED BY STATE AND LOCAL AGENCIES. IF FINAL STABILIZATION IS NOT ACHIEVED TO THE SATISFACTION OF THE AGENCY, THE DEVELOPER AND/OR LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL CORRECTIVE MEASURES TO SATISFY FINAL VEGETATIVE REQUIREMENTS FOR CLOSEOUT.

Tree Protection Notes

1. ALL EXISTING TREES WITHIN THE LIMITS OF THE DEVELOPMENT AND WITHIN ANY NATURAL AREA BUFFER ZONES SHALL REMAIN AND BE PROTECTED UNLESS NOTED ON THESE PLANS FOR REMOVAL.
2. WITHIN THE DRIP LINE OF ANY PROTECTED EXISTING TREE, THERE SHALL BE NO CUT OR FILL OVER A FOUR-INCH DEPTH UNLESS A QUALIFIED ARBORIST OR FORESTER HAS EVALUATED AND APPROVED THE DISTURBANCE.
3. ALL PROTECTED EXISTING TREES SHALL BE PRUNED TO THE CITY OF FORT COLLINS FORESTRY STANDARDS. TREE PRUNING AND REMOVAL SHALL BE PERFORMED BY A BUSINESS THAT HOLDS A CURRENT CITY OF FORT COLLINS ARBORIST LICENSE WHERE REQUIRED BY CODE.
4. PRIOR TO AND DURING CONSTRUCTION, BARRIERS SHALL BE ERECTED AROUND ALL PROTECTED EXISTING TREES WITH SUCH BARRIERS TO BE OF ORANGE FENCING A MINIMUM OF FOUR (4) FEET IN HEIGHT, SECURED WITH METAL T-POSTS, NO CLOSER THAN SIX (6) FEET FROM THE TRUNK OR ONE-HALF (½) OF THE DRIP LINE, WHICHEVER IS GREATER. THERE SHALL BE NO STORAGE OR MOVEMENT OF EQUIPMENT, MATERIAL, DEBRIS OR FILL WITHIN THE FENCED TREE PROTECTION ZONE.
5. DURING THE CONSTRUCTION STAGE OF DEVELOPMENT, THE APPLICANT SHALL PREVENT THE CLEANING OF EQUIPMENT OR MATERIAL OR THE STORAGE AND DISPOSAL OF WASTE MATERIAL SUCH AS PAINTS, OILS, SOLVENTS, ASPHALT, CONCRETE, MOTOR OIL OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE WITHIN THE DRIP LINE OF ANY PROTECTED TREE OR GROUP OF TREES.
6. NO DAMAGING ATTACHMENT, WIRES, SIGNS OR PERMITS MAY BE FASTENED TO ANY PROTECTED TREE.
7. LARGE PROPERTY AREAS CONTAINING PROTECTED TREES AND SEPARATED FROM CONSTRUCTION OR LAND CLEARING AREAS, ROAD RIGHTS-OF-WAY AND UTILITY EASEMENTS MAY BE "RIBBONED OFF," RATHER THAN ERECTING PROTECTIVE FENCING AROUND EACH TREE AS REQUIRED IN SUBSECTION (G)(3) ABOVE. THIS MAY BE ACCOMPLISHED BY PLACING METAL T-POST STAKES A MAXIMUM OF FIFTY (50) FEET APART AND TYING RIBBON OR ROPE FROM STAKE-TO-STAKE ALONG THE OUTSIDE PERIMETERS OF SUCH AREAS BEING CLEARED.
8. THE INSTALLATION OF UTILITIES, IRRIGATION LINES OR ANY UNDERGROUND FIXTURE REQUIRING EXCAVATION DEEPER THAN SIX (6) INCHES SHALL BE ACCOMPLISHED BY BORING UNDER THE ROOT SYSTEM OF PROTECTED EXISTING TREES AT A MINIMUM DEPTH OF TWENTY-FOUR (24) INCHES. THE AUGER DISTANCE IS ESTABLISHED FROM THE FACE OF THE TREE (OUTER BARK) AND IS SCALED FROM TREE DIAMETER AT BREAST HEIGHT AS DESCRIBED IN THE CHART BELOW:

TREE DIAMETER AT BREAST HEIGHT (INCHES)	AUGER DISTANCE FROM FACE OF TREE (FEET)
0-2	1
3-4	2
5-9	5
10-14	10
15-19	12
OVER 19	15

9. NO TREES SHALL BE REMOVED DURING THE SONGBIRD NESTING SEASON (FEBRUARY 1 TO JULY 31) WITHOUT FIRST HAVING A PROFESSIONAL ECOLOGIST OR WILDLIFE BIOLOGIST COMPLETE A NESTING SURVEY TO IDENTIFY ANY ACTIVE NESTS EXISTING ON THE PROJECT SITE. THE SURVEY SHALL BE SENT TO THE CITY ENVIRONMENTAL PLANNER. IF ACTIVE NESTS ARE FOUND, THE CITY WILL COORDINATE WITH RELEVANT STATE AND FEDERAL REPRESENTATIVES TO DETERMINE WHETHER ADDITIONAL RESTRICTIONS ON TREE REMOVAL AND CONSTRUCTION APPLY."

Street Tree Notes

1. A PERMIT MUST BE OBTAINED FROM THE CITY FORESTER BEFORE ANY TREES OR SHRUBS AS NOTED ON THIS PLAN ARE PLANTED, PRUNED OR REMOVED ON THE PUBLIC RIGHT-OF-WAY. THIS INCLUDES ZONES BETWEEN THE SIDEWALK AND CURB, MEDIANS AND OTHER CITY PROPERTY. THIS PERMIT SHALL APPROVE THE LOCATION AND SPECIES TO BE PLANTED. FAILURE TO OBTAIN THIS PERMIT MAY RESULT IN REPLACING OR RELOCATING TREES AND A HOLD ON CERTIFICATE OF OCCUPANCY.
2. CONTACT THE CITY FORESTER TO INSPECT ALL STREET TREE PLANTINGS AT THE COMPLETION OF EACH PHASE OF THE DEVELOPMENT. ALL TREES NEED TO HAVE BEEN INSTALLED AS SHOWN ON THE LANDSCAPE PLAN. APPROVAL OF STREET TREE PLANTING IS REQUIRED BEFORE FINAL APPROVAL OF EACH PHASE.
3. STREET TREE SHALL BE SUPPLIED AND PLANTED BY THE DEVELOPER USING A QUALIFIED LANDSCAPE CONTRACTOR.
4. THE DEVELOPER SHALL REPLACE ALL DEAD AND DYING STREET TREES AFTER PLANTING UNTIL FINAL MAINTENANCE INSPECTION AND ACCEPTANCE BY THE CITY OF FORT COLLINS FORESTRY DIVISION. ALL STREET TREES IN THE PROJECT MUST BE ESTABLISHED OF AN APPROVED SPECIES AND OF ACCEPTABLE LE CONDITION PRIOR TO ACCEPTANCE.
5. STREET TREE LOCATIONS AND NUMBERS MAY BE ADJUSTED TO ACCOMMODATE DRIVEWAY LOCATIONS, UTILITY STANDARDS, SEPARATION BETWEEN TREES, STREET SIGNS AND STREET LIGHTS. STREET TREES SHALL BE CENTERED IN THE MIDDLE OF THE PARKWAY. QUANTITIES SHOWN ON PLAN MUST BE INSTALLED UNLESS A REDUCTION OCCURS TO MEET SEPARATION STANDARDS.

Irrigation Notes

1. ENTIRE IRRIGATION SYSTEM WITH RAIN SENSOR TO BE DESIGNED FOR LANDSCAPE SHOWN ON PLAN AND BUILT BY CONTRACTOR UTILIZING EXISTING IRRIGATION SYSTEM. IRRIGATION CONTRACTOR SHALL VERIFY P.S.I. AND GPM AVAILABLE. SYSTEM SHALL BE DESIGNED TO MEET THE AVAILABLE P.S.I. AND GPM.
2. ALL INDICATED SOD GRASS AREAS ARE TO BE IRRIGATED BY A PERMANENT UNDERGROUND AUTOMATIC IRRIGATION SYSTEM. TURF AREAS LESS THAN 25 FEET IN WIDTH ARE TO BE IRRIGATED WITH POP-UP SPRAY HEADS AND AREAS GREATER THAN 25FEET SHALL USE A ROTOR POP-UP SPRAY SYSTEM.
3. ALL TREES, SHRUBS AND PERENNIALS OUTSIDE OF POP-UP IRRIGATED AREAS, ARE TO BE IRRIGATED WITH A PERMANENT DRIP IRRIGATION SYSTEM WITH RAIN SENSOR. IRRIGATION SYSTEM AND NECESSARY SLEEVING WILL BE DESIGNED AND BUILT BY CONTRACTOR AND ADJUSTED TO A LOW WATER REQUIREMENT, BASED ON THE NEEDS OF SELECTED PLANT MATERIAL.
4. QUICK COUPLERS SHALL BE PROVIDED AT EACH POINT OF CONNECTION AND AT REGULAR SPACING ALONG THE IRRIGATION MAINLINE. SPACING OF QUICK COUPLES SHALL NOT EXCEED 200 FEET. LOCATE QUICK COUPLING VALVE AT A POINT OF EASY ACCESS.
5. ALL IRRIGATION TRENCHES SHALL BE PROPERLY WATERED AND COMPACTED TO AVOID FUTURE SETTLING. ANY SETTLING DURING WARRANTY PERIOD WILL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
6. COORDINATE ALL IRRIGATION WORK WITH EXISTING UTILITIES AND RESPECTIVE TRADES.
7. ALL IRRIGATION SLEEVING SHALL BE PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. IRRIGATION CONTRACTOR SHALL COORDINATE SLEEVING LOCATIONS WITH GENERAL CONTRACTOR. ALL IRRIGATION SLEEVING TO BE STAKED IN THE FIELD OR LOCATED ON DIMENSIONED "AS-BUILT" DRAWING BY THE GENERAL CONTRACTOR TO ALLOW FUTURE USE AND LOCATION.

Hydrozone Table

ZONE	AREA		WATER USE	GALLONS
HIGH	0	SF	18 GAL/SF	0 GAL
MODERATE	17,639	SF	10 GAL/SF	176,390 GAL
LOW	7,379	SF	3 GAL/SF	22,137 GAL
VERY LOW	12,025	SF	0 GAL/SF	0 GAL
TOTAL / AVERAGE	37,043	SF	198,527 GAL	5.3 GAL/SF

A PERMIT MUST BE OBTAINED FROM THE CITY FORESTER BEFORE ANY TREES OR SHRUBS AS NOTED ON THIS PLAN ARE PLANTED, PRUNED OR REMOVED IN THE PUBLIC RIGHT-OF-WAY. THIS INCLUDES ZONES BETWEEN THE SIDEWALK AND CURB, MEDIANS AND OTHER CITY PROPERTY. THIS PERMIT SHALL APPROVE THE LOCATION AND SPECIES TO BE PLANTED. FAILURE TO OBTAIN THIS PERMIT IS A VIOLATION OF THE CITY OF FORT COLLINS CODE SUBJECT TO CITATION (SECTION 27-31) AND MAY ALSO RESULT IN REPLACING OR RELOCATING TREES AND A HOLD ON CERTIFICATE OF OCCUPANCY.

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SEAL

PROJECT TITLE

NEC
LAKE &
SHIELDS

FORT COLLINS
COLORADO

PREPARED FOR

OWNER:

Colorado State University Research Foundation

REVISIONS

	DATE
Staff Comment	10.3.18
Staff Comment	10.31.18

DATE

August 22, 2018

SHEET TITLE

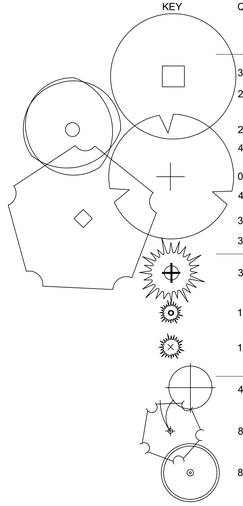
Landscape Notes, Details & Schedules

SHEET INFORMATION

Sheet Number: 1

Of: 4

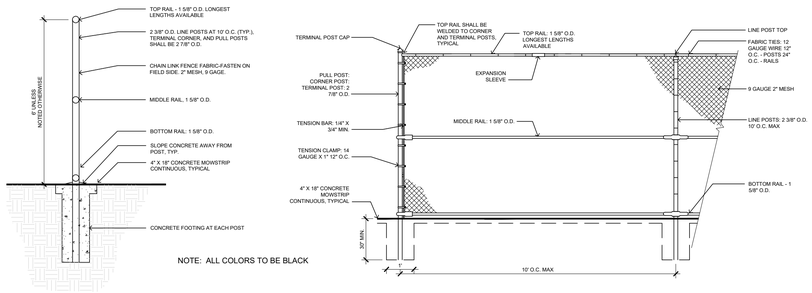
Plant List



KEY	QTY	RATIO	SCIENTIFIC/COMMON NAME	HEIGHT	WIDTH	SIZE	NOTES
		21	SHADE/CANOPY TREES -				
	3	7.6%	Celtis occidentalis HACKBERRY, WESTERN	60'	50'	2.0" cal. BB	WELL BRANCHED W/ STRAIGHT TRUNK & CENTRAL LEADER
	2		(mitigation tree)			3.0" cal. BB	
	2	9.2%	Gymnocladus dioicus ;Espresso' KENTUCY COFFEETREE, ESPRESSO	60'	50'	2.0" cal. BB	WELL BRANCHED W/ STRAIGHT TRUNK & CENTRAL LEADER
	4		(mitigation tree)			3.0" cal. BB	
	0	6.1%	Quercus macrocarpa OAK, BUR	80'	60'	3.0" cal. BB	WELL BRANCHED W/ STRAIGHT TRUNK & CENTRAL LEADER
	4		(mitigation tree)				
	3	9.2%	Quercus shummardi OAK, SHUMMARD	50'	40'	3.0" cal. BB	WELL BRANCHED W/ STRAIGHT TRUNK & CENTRAL LEADER
	3		(mitigation trees)				
		23	EVERGREEN TREES -				
	3	9.2%	Picea pungens 'Bakeri' SPRUCE, BAKERI	35'	15'	6' BB	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	10	15.3%	Pinus mugo 'Tannenbaum' PINE, TANNENBAUM MUGO	15'	8'	6' BB	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	10	15.3%	Picea abies 'Cupressina' SPRUCE, FASTIGIATE NORWAY	20'	6'	6' BB	FULL SPECIMEN, EVENLY AND WELL BRANCHED
		20	ORNAMENTAL TREES -				
	4	6.1%	Amelanchier x grandiflora 'Autumn Brilliance' SERVICEBERRY, AUTUMN BRILLIANCE	20'	20'	Multi-Stem	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	8	12.3%	Malus 'Spring Snow' CRABAPPLE, SPRING SNOW	XX'	XX'	1.5" cal. BB	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	8	12.3%	Pyrus calleryana 'Redspire' PEAR, REDSPIRE	35'	25'	1.5" cal. BB	FULL SPECIMEN, EVENLY AND WELL BRANCHED
		16	EVERGREEN SHRUBS -				
	16	---	Pinus mugo pumilio PINE, DWARF MUGO	3'	5'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
		204	DECIDUOUS SHRUBS -				
	26	---	Aronia butifolia 'Brilliantissima' CHOKEBERRY, BRILLANT RED	6'	6'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	39	---	Caryopteris x clandonensis 'Blue Mist' SPIREA, BLUE MIST	4'	3'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	28	---	Euonymous alatas compactus EUONYMOUS, COMPACT BURNING BUSH	6'	6'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	39	---	Potentilla fruiticosa 'McKay's White' POTENTILLA, MCKAY'S WHITE	2'	3'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	12	---	Prunus besseyi 'Pawnee Buttes' SAND CHERRY, WESTERN PAWNEE BUTTES	2'	4'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	30	---	Cornus sericea Arctic Fire DOGWOOD, ARCTIC FIRE	4'	4'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	20	---	Chrysothamnus nauseosus RABBITBRUSH, RUBBER	5'	4'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
	10	---	Syringa patula 'Miss Kim' LILAC, MISS KIM DWARF	4'	4'	5 Gallon	FULL SPECIMEN, EVENLY AND WELL BRANCHED
		253	PERENNIALS/GRASSES -				
	33	---	Agastache rupertris HYSSOP, SUNSET	2'	18"	1 Gallon	WELL ROOTED
	89	---	Bouteloua gracilis 'Blonde Ambition' GRASS, BLONDE AMBITION BLUE GRAMA	2'	2'	1 Gallon	WELL ROOTED
	89	---	Calamagrostis acutiflora 'Karl Foerster' GRASS, FEATHER REED	5'	2'	1 Gallon	WELL ROOTED
	20	---	Helictrotrichon sempervirens GRASS, BLUE AVENA	2'	2'	1 Gallon	WELL ROOTED
	22	---	Panicum virgatum 'Heavy Metal' GRASS, HEAVY METAL BLUE SWITCH	3'	18"	1 Gallon	WELL ROOTED

NOTE: IN ANY INSTANCE WHERE THE PLANT LIST OR LANDSCAPE QUANTITIES DO NOT MATCH THE PLAN, REQUIRED PLANTS/QUANTITIES SHALL BE PER THE PLAN. CONTRACTOR TO VERIFY QUANTITIES.

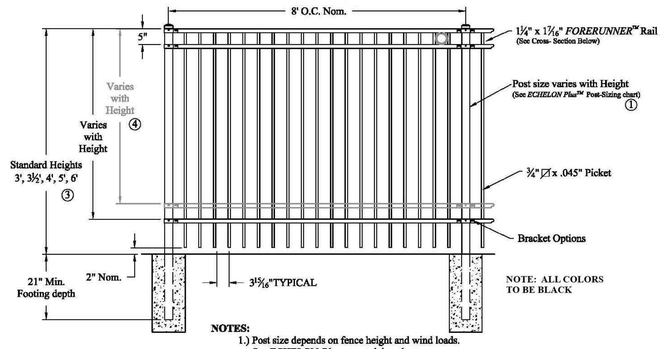
6' Vinyl-Coated Chain Link Fence



NOTE: ALL COLORS TO BE BLACK

NOT TO SCALE

6' Ornamental Steel Fence

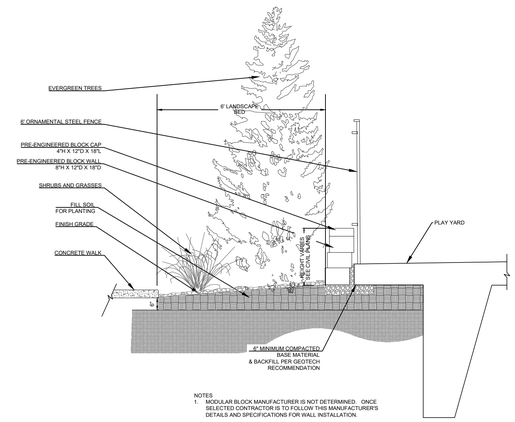


NOTES:

1.) Post size depends on fence height and wind loads. See ECHELON *Plus*™ post sizing chart.
2.) Panels also available for 6' on center post spacing
3.) Additional heights available on request
4.) Fourth rail optional.

NOT TO SCALE

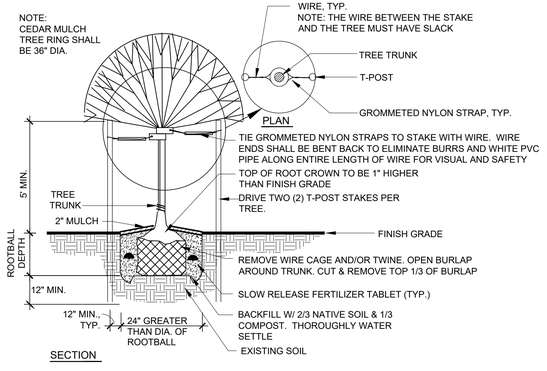
Pre-Engineered Block Wall



NOTES
1. MODULAR BLOCK MANUFACTURER IS NOT DETERMINED. ONCE SELECTED CONTRACTOR IS TO FOLLOW THIS MANUFACTURER'S DETAILS AND SPECIFICATIONS FOR WALL INSTALLATION.
2. COLOR TO BE EARTH TONED TO MATCH BUILDING ARCHITECTURE
3. OWNER TO APPROVE COLOR AND MATERIAL PRIOR TO INSTALLATION.

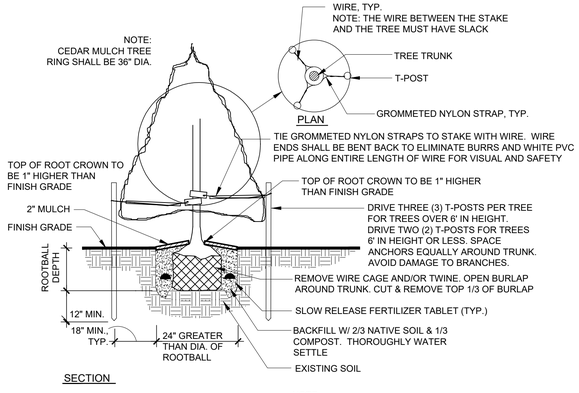
NOT TO SCALE

A FREE PERMIT MUST BE OBTAINED FROM THE CITY FORESTER BEFORE ANY STREET TREES ARE PLANTED IN PARKWAYS BETWEEN THE SIDEWALK AND CURB. STREET TREE LOCATIONS AND NUMBERS MAY CHANGE TO MEET ACTUAL UTILITY/TREE SEPARATION STANDARDS. LANDSCAPE CONTRACTOR MUST OBTAIN APPROVAL OF STREET TREE LOCATION AFTER UTILITY LOCATES. STREET TREES MUST BE INSPECTED AND APPROVED BEFORE PLANTING. FAILURE TO OBTAIN THIS PERMIT IS A VIOLATION OF THE CODE OF THE CITY OF FORT COLLINS.



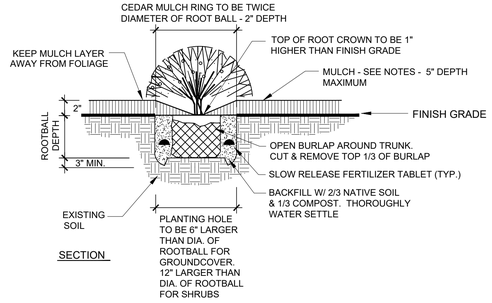
NOTE:
WIRE BASKETS AND TWINE SHALL BE COMPLETELY REMOVED PRIOR TO TREE INSTALLATION.

DECIDUOUS TREE PLANTING DETAIL



NOTE:
WIRE BASKETS AND TWINE SHALL BE COMPLETELY REMOVED PRIOR TO TREE INSTALLATION.

CONIFER TREE PLANTING DETAIL



GROUND COVER & SHRUB PLANTING DETAIL

TB GROUP
landscape architecture | planning | illustration
444 Mountain Ave, Berthoud,CO 80513
TEL 970.532.5891
WEB TBGroup.us

SEAL

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OWNER:

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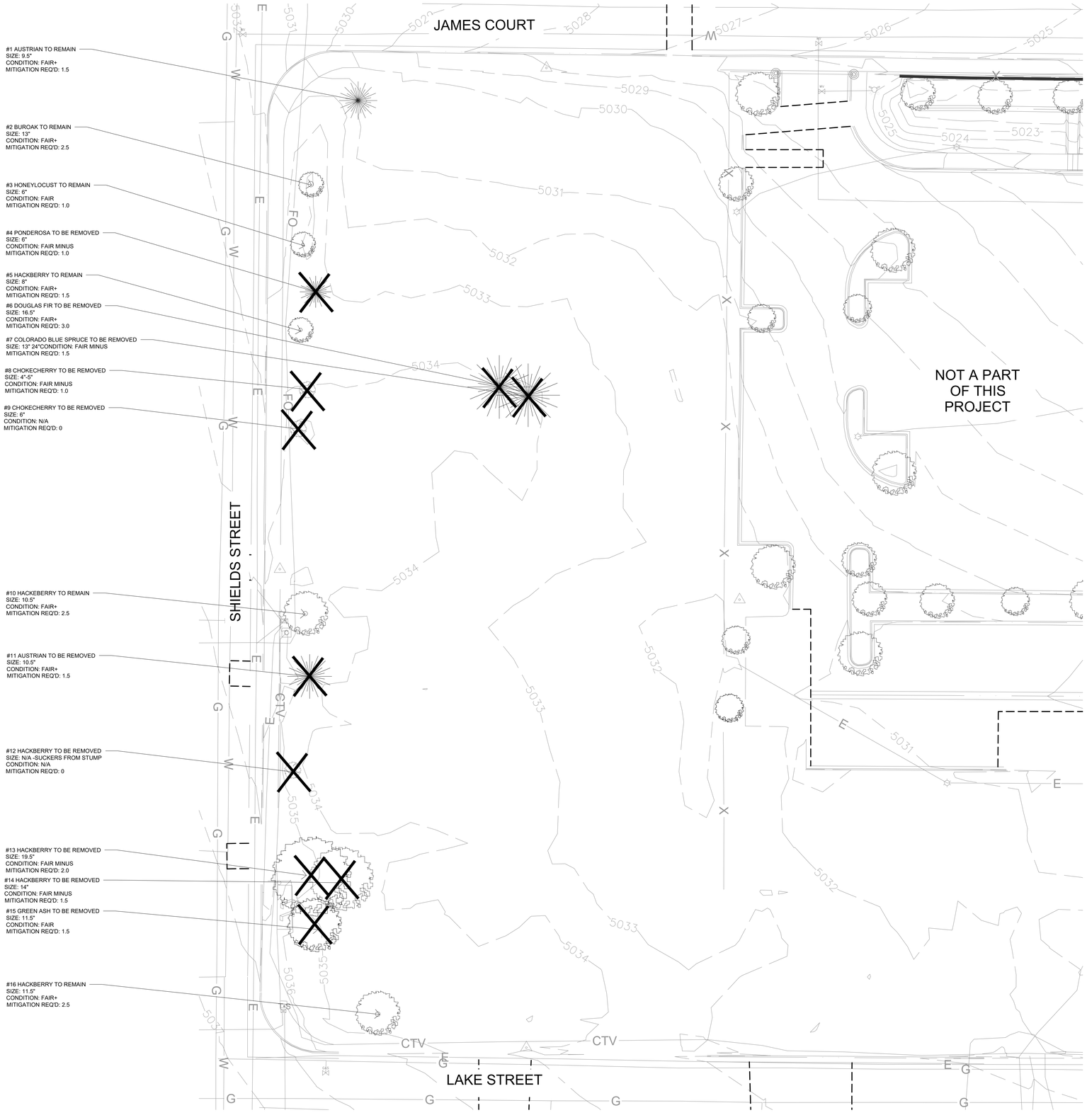
SHEET TITLE

Landscape Notes, Details & Schedules

SHEET INFORMATION

Sheet Number: 2

Of: 4



Existing Tree Schedule

COMMON NAME	SIZE	CONDITION	TO BE REMOVED	MITIGATION REQUIRED	REASON FOR REMOVAL
1. AUSTRIAN	9.5"	FAIR +	NO	YES - 1.5	N/A
2. BUR OAK	13"	FAIR +	NO	YES - 2.5	N/A
3. HONEYLOCUST	6"	FAIR	NO	YES - 1.0	N/A
4. PONDEROSA	6"	FAIR MINUS	YES	YES - 1.0	CONFLICT WITH SIDEWALK
5. HACKBERRY	8"	FAIR +	NO	YES - 1.5	N/A
6. DOUGLAS FIR	16.5"	FAIR +	YES	YES - 3.0	CONFLICT WITH DEVELOPMENT
7. CO BLUE SPRUCE	13"	FAIR MINUS	YES	YES - 1.5	CONFLICT WITH DEVELOPMENT
8. CHOKECHERRY	4"-5"	FAIR MINUS	YES	YES - 1.0	NOT IDEAL ROW TREE
9. CHOKECHERRY	6"	N/A	YES	NO - 0	N/A
10. HACKBERRY	10.5"	FAIR +	NO	YES - 2.5	N/A
11.AUSTRIAN	10.5"	FAIR +	YES	YES - 1.5	CONFLICT WITH SIDEWALK
12. HACKEBERRY	SUCKERS	N/A	YES	NO - 0	SUCKERS FROM STUMP
13. HACKBERRY	19.5"	FAIR MINUS	YES	YES - 2.0	CONFLICT WITH SIDEWALK
14. HACKBERRY	14"	FAIR MINUS	YES	YES - 1.5	N/A
15. GREEN ASH	11.5"	FAIR	YES	YES - 1.5	CONFLICT WITH SIDEWALK
16. HACKBERRY	11.5"	FAIR +	NO	YES - 2.5	N/A

TOTAL MITIGATION REQUIRED 13 TREES

0 20' 30' 40'

SCALE 1" = 20'-0"

NORTH

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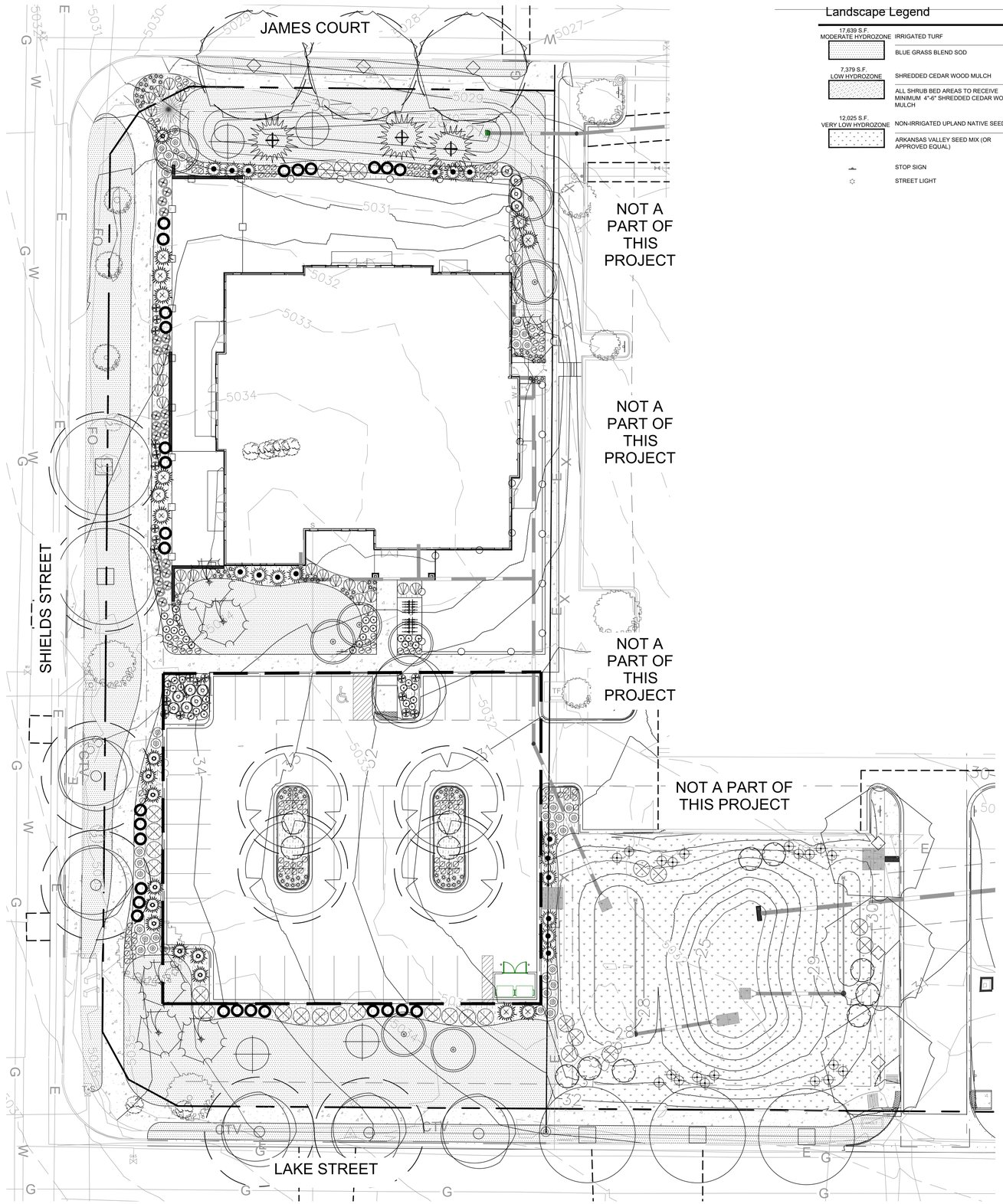
SHEET TITLE

Tree Inventory & Mitigation Plan

SHEET INFORMATION

Sheet Number: 3

Of: 4



Landscape Legend

17,639 S.F. MODERATE HYDROZONE	IRRIGATED TURF
	BLUE GRASS BLEND SOD
7,379 S.F. LOW HYDROZONE	SHREDDED CEDAR WOOD MULCH
	ALL SHRUB BED AREAS TO RECEIVE MINIMUM 4"-6" SHREDDED CEDAR WOOD MULCH
12,025 S.F. VERY LOW HYDROZONE	NON-IRRIGATED UPLAND NATIVE SEED MIX
	ARKANSAS VALLEY SEED MIX (OR APPROVED EQUAL)
	STOP SIGN
	STREET LIGHT
	STEEL EDGER, ROUNDED TOP
	EXISTING TREES
	MITIGATION TREES
	TREE TO BE REMOVED

Landscape Notes

KEY	QTY	RATIO	SCIENTIFIC/COMMON NAME
	21		SHADE/CANOPY TREES -
	3	7.6%	Celtis occidentalis HACKBERRY, WESTERN (mitigation tree)
	2		
	2	9.2%	Gymnocladus dioicus ;Espresso' KENTUCY COFFEETREE, ESPRESSO (mitigation tree)
	4		
	0	6.1%	Quercus macrocarpa OAK, BUR (mitigation tree)
	4		
	3	9.2%	Quercus shummardi OAK, SHUMMARD (mitigation trees)
	3		
	23		EVERGREEN TREES -
	3	9.2%	Picea pungens 'Bakeri' SPRUCE, BAKERI
	10	15.3%	Pinus mugo 'Tannenbaum' PINE, TANNENBAUM MUGO
	10	15.3%	Picea abies 'Cupressina' SPRUCE, FASTIGIATE NORWAY
	20		ORNAMENTAL TREES -
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	39	---	Caryopteris x clandonensis 'Blue Mist' SPIREA, BLUE MIST
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	39	---	Potentilla fruiticosa 'McKay's White' POTENTILLA, MCKAY'S WHITE
	12	---	Prunus besseyi 'Pawnee Buttes' SAND CHERRY, WESTERN PAWNEE BUTTES
	30	---	Cornus sericea Arctic Fire DOGWOOD, ARCTIC FIRE
	20	---	Chrysothamnus nauseosus RABBITBRUSH, RUBBER
	10	---	Syringa patula 'Miss Kim' LILAC, MISS KIM DWARF
	253		PERENNIALS/GRASSES -
	33	---	Agastache rupertris HYSSOP, SUNSET
	89	---	Bouteloua gracilis 'Blonde Ambition' GRASS, BLONDE AMBITION BLUE GRAMA
	89	---	Calamagrostis acutiflora 'Karl Foerster' GRASS, FEATHER REED
	20	---	Helictrotrichon sempervirens GRASS, BLUE AVENA
	22	---	Panicum virgatum 'Heavy Metal' GRASS, HEAVY METAL BLUE SWITCH

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Parking Lot Area Landscape

PER LUC 3.2.1 (E)(5):

PARKING LOT
TOTAL PARKING AREA = 15,557 SF X 6% = 999 SF REQUIRED

PARKING LOT AREA LANDSCAPE = 1,544 SF PROVIDED

0 20' 30' 40'
SCALE 1" = 20'-0"

NORTH

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SEAL

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SHEET TITLE

Landscape Plan

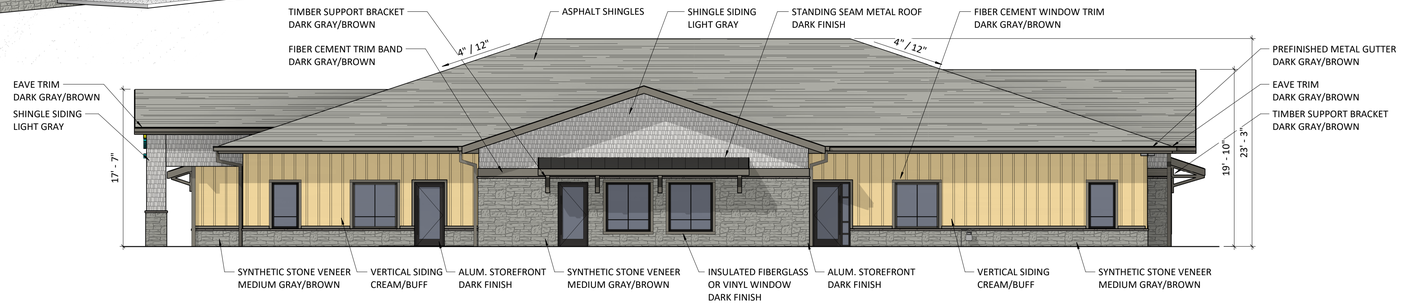
SHEET INFORMATION

Sheet Number: 4

Of: 4

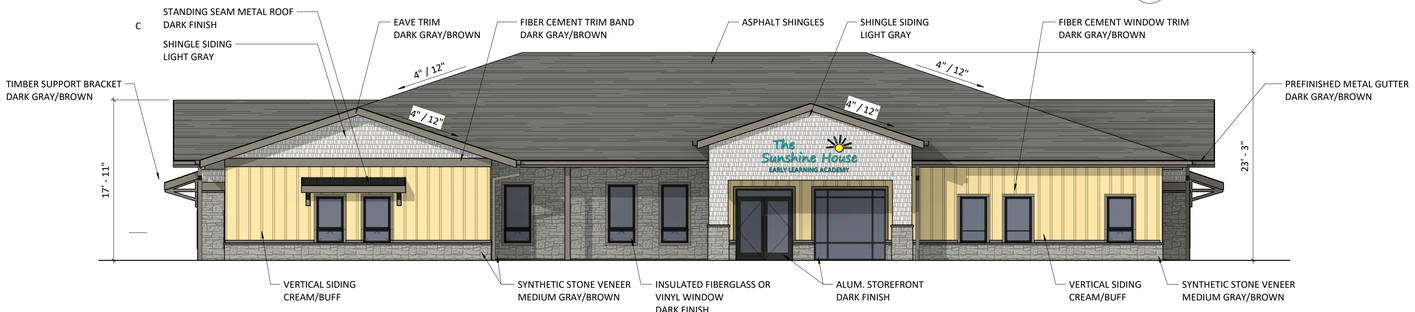
EXTERIOR VIEW FROM S/E

5 PDP.1 SCALE:



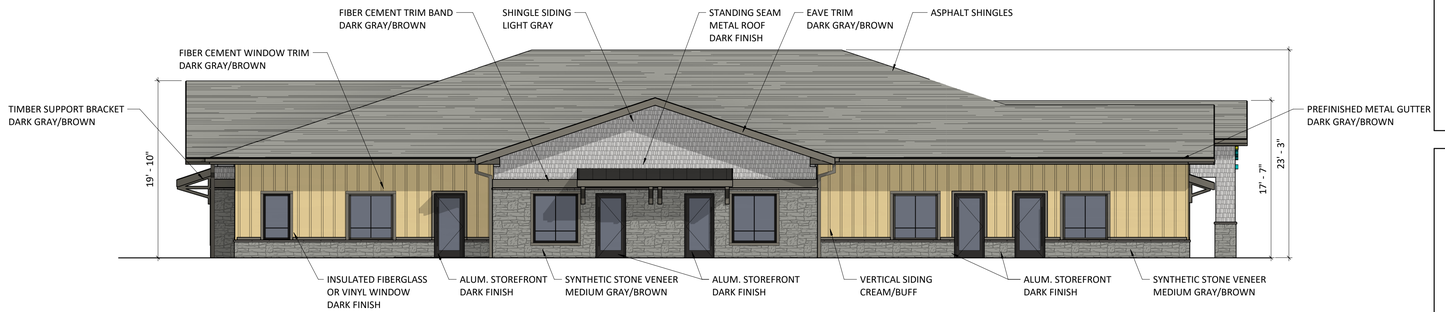
EAST ELEVATION.

4 PDP.1 SCALE: 1/8" = 1'-0"



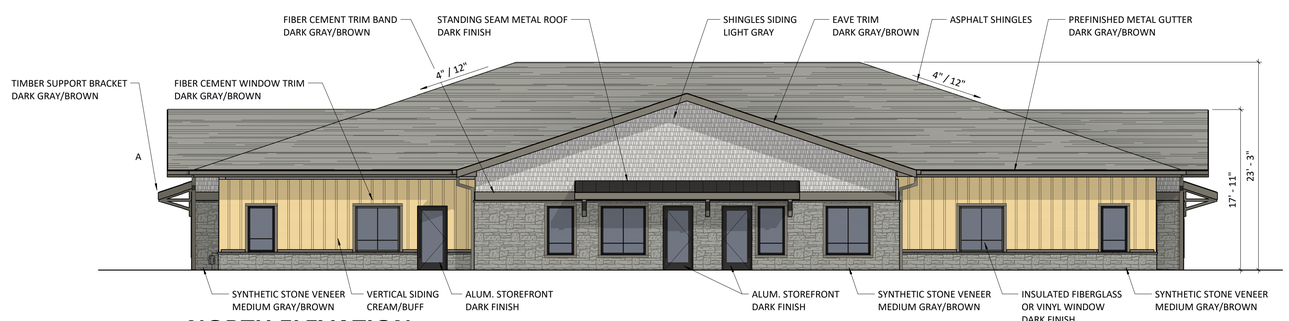
SOUTH ELEVATION.

1 PDP.1 SCALE: 1/8" = 1'-0"



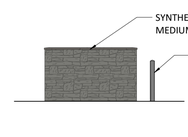
WEST ELEVATION.

2 PDP.1 SCALE: 1/8" = 1'-0"



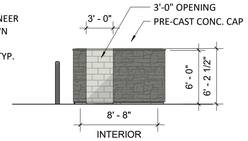
NORTH ELEVATION.

3 PDP.1 SCALE: 1/8" = 1'-0"



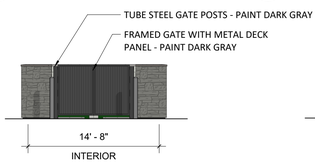
TRASH - EAST.

8 PDP.1 SCALE: 1/8" = 1'-0"



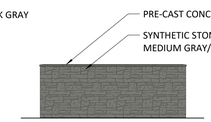
TRASH - WEST.

9 PDP.1 SCALE: 1/8" = 1'-0"



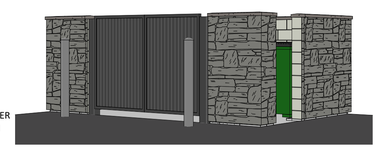
TRASH - NORTH.

6 PDP.1 SCALE: 1/8" = 1'-0"



TRASH - SOUTH.

7 PDP.1 SCALE: 1/8" = 1'-0"



TRASH ENCLOSURE FROM N/W

10 PDP.1 SCALE:

ALL EXPOSED ELECTRICAL, PLUMBING AND MECHANICAL EQUIPMENT AND METERS TO BE SCREENED OR OTHERWISE PAINTED TO MATCH ADJACENT BUILDING MATERIAL

alm2s
712 WHALERS WAY SUITE, B-100
FORT COLLINS, CO 80525
(970) 223-1820
www.alm2s.com

The Sunshine House - FC #213
CSURF
FORT COLLINS, CO

NOT FOR CONSTRUCTION

NO	ISSUE	DATE

PROJECT 1826
DATE 10/03/2018
DRAWN kjb

BUILDING ELEVATIONS

0 1/2" 1" 2"

PRINTED:10/2/2018 11:15:58 AM
FILE NAME:0000-Project-SD.rvt

PDP.1

5 4 3 2 1

NEC LAKE AND SHIELDS

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 14, TOWNSHIP 7 NORTH, RANGE 69 WEST OF THE 6TH P.M., CITY OF FORT COLLINS, COUNTY OF LARIMER, STATE OF COLORADO

STATEMENT OF OWNERSHIP AND SUBDIVISION:

Know all persons by these presents, that the undersigned owner(s) of the following described land:

A tract of land located in the Southwest Quarter of Section 14, Township 7 North, Range 69 West of the 6th P.M., City of Fort Collins, County of Larimer, State of Colorado, and being more particularly described as follows:

Considering the West line of the Southwest Quarter of said Section 14 as bearing North 00° 29' 45" East and with all bearings contained herein relative thereto:

COMMENCING at the Southwest corner of said Section 14; thence along the West line of the Southwest Quarter, North 00° 29' 45" East, 636.46 feet; thence, South 89° 30' 15" East, 39.00 feet to a point on the East right-of-way line of South Shields Street, said point being the POINT OF BEGINNING; thence along said East right-of-way line the following 4 courses and distances: thence, North 00° 29' 44" East, 324.95 feet; thence, North 34° 31' 56" East, 23.03 feet; thence, North 63° 03' 37" East, 18.14 feet; thence, North 00° 36' 31" East, 4.50 feet to the South right-of-way line of James Court; thence along said South right-of-way line, South 89° 22' 02" East, 595.97 feet to a point on the West line of Block 1, College Heights; thence along said West line, South 00° 29' 01" West, 331.22 feet; thence departing said West line, North 89° 22' 06" West, 200.55 feet; thence, South 00° 29' 45" West, 56.89 feet to the North right-of-way line of Lake Street; thence along said North right-of-way line the following 3 courses and distances: thence, North 89° 35' 52" West, 390.78 feet; thence, North 61° 34' 56" West, 24.80 feet; thence, North 28° 37' 40" West, 24.25 feet to the POINT OF BEGINNING, containing 230,702 square feet or 5.296 acres, more or less.

For themselves and their successors in interest (collectively "Owner") have caused the above described land to be surveyed and subdivided into lots, tracts and streets as shown on this Plat to be known as NEC LAKE AND SHIELDS (the "Development"), subject to all easements and rights-of-way now of record or existing or indicated on this Plat. The rights and obligations of this Plat shall run with the land.

CERTIFICATE OF DEDICATION:

The Owner does hereby dedicate and convey to the City of Fort Collins, Colorado (hereafter "City"), for public use, forever, a permanent right-of-way for street purposes and the "Easements" as laid out and designated on this Plat; provided, however, that (1) acceptance by the City of this dedication of Easements does not impose upon the City a duty to maintain the Easements so dedicated, and (2) acceptance by the City of this dedication of streets does not impose upon the City a duty to maintain streets so dedicated until such time as the provisions of the Maintenance Guarantee have been fully satisfied. The streets dedicated on this Plat are the fee property of the City as provided in Section 31-23-107 C.R.S. The City's rights under the Easements include the right to install, operate, access, maintain, repair, reconstruct, remove and replace within the Easements public improvements consistent with the intended purpose of the Easements; the right to install, maintain and use gates in any fences that cross the Easements; the right to mark the location of the Easements with suitable markers; and the right to permit other public utilities to exercise these same rights. Owner reserves the right to use the Easements for purposes that do not interfere with the full enjoyment of the rights hereby granted. The City is responsible for maintenance of its own improvements and for repairing any damage caused by its activities in the Easements, but by acceptance of this dedication, the City does not accept the duty of maintenance of the Easements, or of improvements in the Easements that are not owned by the City. Owner will maintain the surface of the Easements in a sanitary condition in compliance with any applicable weed, nuisance or other legal requirements.

Except as expressly permitted in an approved plan of development or other written agreement with the City, Owner will not install on the Easements, or permit the installation on the Easements, of any building, structure, improvement, fence, retaining wall, sidewalk, tree or other landscaping (other than usual and customary grasses and other ground cover). In the event such obstacles are installed in the Easements, the City has the right to require the Owner to remove such obstacles from the Easements. If Owner does not remove such obstacles, the City may remove such obstacles without any liability or obligation for repair and replacement thereof, and charge the Owner the City's costs for such removal. If the City chooses not to remove the obstacles, the City will not be liable for any damage to the obstacles or any other property to which they are attached.

The rights granted to the City by this Plat inure to the benefit of the City's agents, licensees, permittees and assigns.

OWNER:

BY: _____

STATE OF COLORADO)
)ss.
COUNTY OF LARIMER)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by

_____, as _____ of _____.

Witness my hand and official seal

My commission expires: _____

_____
Notary Public

LIENHOLDER:

BY: _____

STATE OF COLORADO)
)ss.
COUNTY OF LARIMER)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by

_____, as _____ of _____.

Witness my hand and official seal

My commission expires: _____

_____
Notary Public

MAINTENANCE GUARANTEE:

The Owner hereby warrants and guarantees to the City, for a period of two (2) years from the date of completion and first acceptance by the City of the improvements warranted hereunder, the full and complete maintenance and repair of the improvements to be constructed in connection with the Development which is the subject of this Plat. This warranty and guarantee is made in accordance with the City Land Use Code and/or the Transitional Land Use Regulations, as applicable. This guarantee applies to the streets and all other appurtenant structures and amenities lying within the rights-of-way, Easements and other public properties, including, without limitation, all curbing, sidewalks, bike paths, drainage pipes, culverts, catch basins, drainage ditches and landscaping. Any maintenance and/or repair required on utilities shall be coordinated with the owning utility company or department.

The Owner shall maintain said improvements in a manner that will assure compliance on a consistent basis with all construction standards, safety requirements and environmental protection requirements of the City. The Owner shall also correct and repair, or cause to be corrected and repaired, all damages to said improvements resulting from development-related or building-related activities. In the event the Owner fails to correct any damages within thirty (30) days after written notice thereof, then said damages may be corrected by the City and all costs and charges billed to and paid by the Owner. The City shall also have any other remedies available to it as authorized by law. Any damages which occurred prior to the end of said two (2) year period and which are unrepaired at the termination of said period shall remain the responsibility of the Owner.

REPAIR GUARANTEE:

In consideration of the approval of this final Plat and other valuable consideration, the Owner does hereby agree to hold the City harmless for a five (5) year period, commencing upon the date of completion and first acceptance by the City of the improvements to be constructed in connection with the development which is the subject of this Plat, from any and all claims, damages, or demands arising on account of the design and construction of public improvements of the property shown herein; and the Owner furthermore commits to make necessary repairs to said public improvements, to include, without limitation, the roads, streets, fills, embankments, ditches, cross pans, sub-drains, culverts, walls and bridges within the right-of-way, Easements and other public properties, resulting from failures caused by design and/or construction defects. This agreement to hold the City harmless includes defects in materials and workmanship, as well as defects caused by or consisting of settling trenches, fills or excavations.

Further, the Owner warrants that he/she owns fee simple title to the property shown hereon and agrees that the City shall not be liable to the Owner or his/her successors in interest during the warranty period, for any claim of damages resulting from negligence in exercising engineering techniques and due caution in the construction of cross drains, drives, structures or buildings, the changing of courses of streams and rivers, flooding from natural creeks and rivers, and any other matter whatsoever on private property. Any and all monetary liability occurring under this paragraph shall be the liability of the Owner. I further warrant that I have the right to convey said land according to this Plat.

NOTICE OF OTHER DOCUMENTS:

All persons take notice that the Owner has executed certain documents pertaining to this Development which create certain rights and obligations of the Development, the Owner and/or subsequent Owners of all or portions of the Development site, many of which obligations constitute promises and covenants that, along with the obligations under this Plat, run with the land. The said documents may also be amended from time to time and may include, without limitation, the Development Agreement, Site And Landscape Covenants, Final Site Plan, Final Landscape Plan, and Architectural Elevations, which documents are on file in the office of the Clerk of the City and should be closely examined by all persons interested in purchasing any portion of the Development site.

ATTORNEY'S CERTIFICATION

I hereby certify that this Subdivision Plat has been duly executed as required pursuant to Section 2.2.3(C)(3)(a) through (e) inclusive of the Land Use Code of the City of Fort Collins and that all persons signing this Subdivision Plat on behalf of a corporation or other entity are duly authorized signatories under the laws of the State of Colorado. This Certification is based upon the records of the Clerk and Recorder of Larimer County, Colorado as of the date of execution of the Plat and other information discovered by me through reasonable inquiry and is limited as authorized by Section 2.2.3(C)(3)(f) of the Land Use Code.

Attorney:_____

Address: _____

_____

Registration No.:_____

APPROVED AS TO FORM, CITY ENGINEER

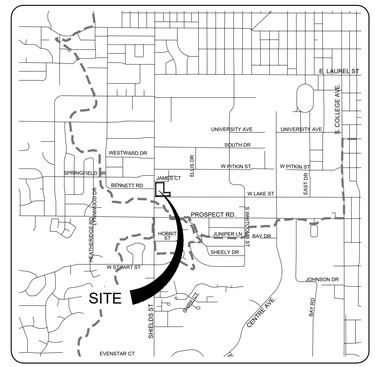
By the City Engineer of the City of Fort Collins, Colorado this _____day of _____ A.D., 20____.

_____
City Engineer

PLANNING APPROVAL

By the Director of Community Development and Neighborhood Services of the City of Fort Collins, Colorado this _____ day of _____ A.D., 20_____.

_____
Director of Community Development and Neighborhood Services



NORTH

VICINITY MAP

1"=2000'

SURVEYOR'S STATEMENT

I, Robert C. Tessely, a Colorado Registered Professional Land Surveyor do hereby state that this Subdivision Plat was prepared from an actual survey under my personal supervision, that the monumentation as indicated hereon were found or set as shown, and that the foregoing plat is an accurate representation thereof, all this to the best of my knowledge, information and belief.

DRAFT 10-3-18

For and on Behalf of Northern Engineering
Robert C. Tessely
Colorado Registered Professional
Land Surveyor No. 38470

NOTES:

1. Basis of Bearings is the West line of the Southwest Quarter of Section 14, Township 7 North, Range 69 West of the 6th P.M. as bearing North 00° 29' 45" East (assumed bearing) and monumented as shown.

2. All information regarding easements, rights-of-way or Title of Record, Northern Engineering relied upon Commitment Number 580-F0618065-383-JNB, prepared by Fidelity National Title Company, dated August 15, 2018 and Commitment Number 580-F0618058-383-JNB, prepared by Fidelity National Title Company, dated August 17, 2018.

3. The lineal unit of measurement for this plat is U. S. Survey Feet.

4. There shall be no private conditions, covenants or restrictions that prohibit or limit the installation of resource conserving equipment or landscaping that are allowed by Sections 12-120 - 12-122 of the City code.

NOTICE

ALL RESPONSIBILITIES AND COSTS OF OPERATION, MAINTENANCE AND RECONSTRUCTION OF THE PRIVATE STREETS AND/OR DRIVES LOCATED ON THE PRIVATE PROPERTY THAT IS THE SUBJECT OF THIS PLAT SHALL BE BORNE BY THE OWNERS OF SAID PROPERTY, EITHER INDIVIDUALLY, OR COLLECTIVELY, THROUGH A PROPERTY OWNERS' ASSOCIATION, IF APPLICABLE. THE CITY OF FORT COLLINS SHALL HAVE NO OBLIGATION OF OPERATION, MAINTENANCE OR RECONSTRUCTION OF SUCH PRIVATE STREETS AND/OR DRIVES NOR SHALL THE CITY HAVE ANY OBLIGATION TO ACCEPT SUCH STREETS AND/OR DRIVES AS PUBLIC STREETS OR DRIVES.

NOTICE:
According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years after the date of the certificate shown hereon.

SECTION: 14
TOWNSHIP: 7
RANGE: 69 W of the 6th PM

NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

PROJECT: 232-047
DESIGNED BY:
DRAWN BY: L. Smith
DATE: 10/3/18
SCALE: N.A.
REVIEWED BY: R. Tessely

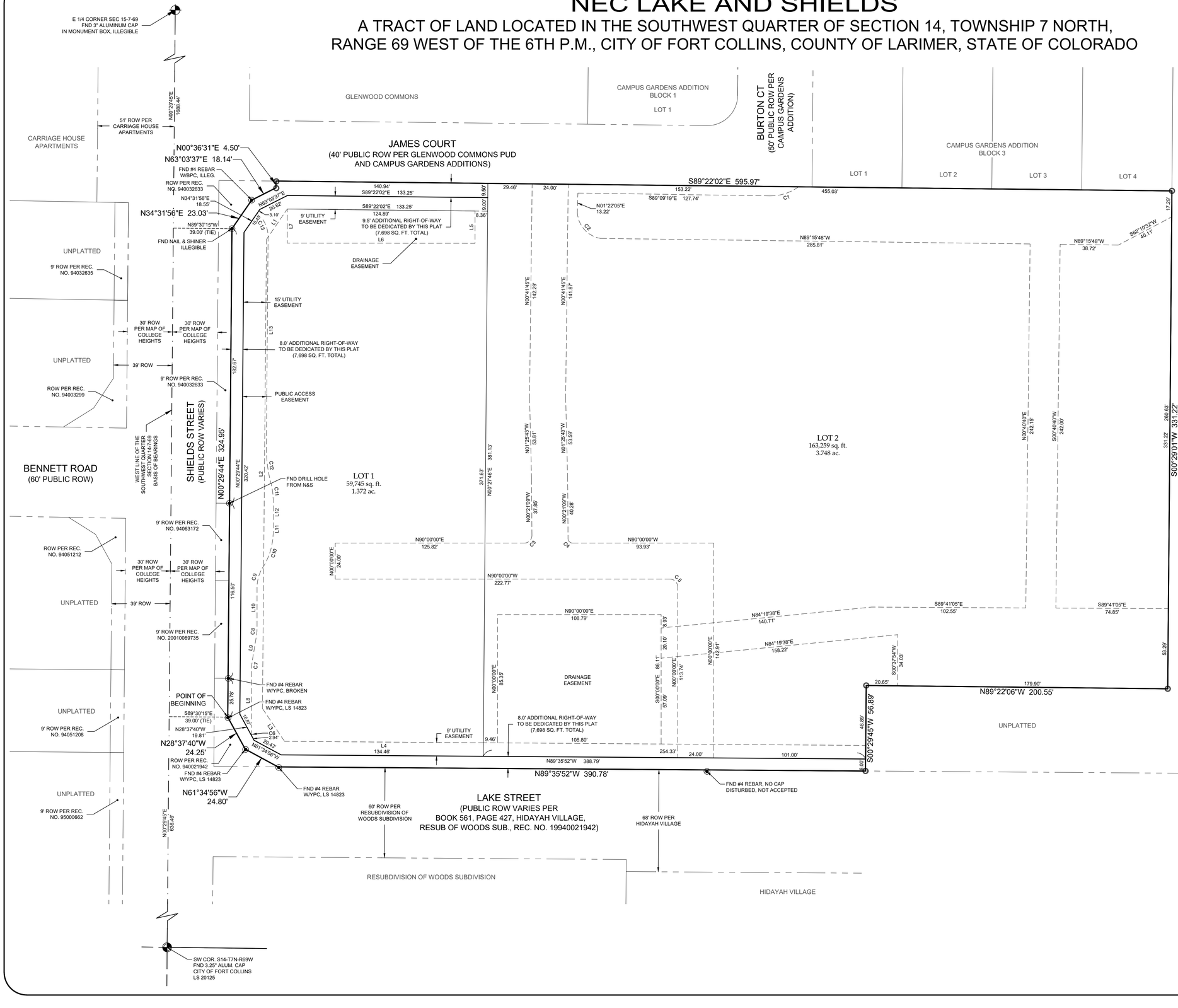
NEC LAKE AND SHIELDS

SECTION 14, T7N, R69W
CITY OF FORT COLLINS, COLORADO

Sheet
1
Of 2 Sheets

NEC LAKE AND SHIELDS

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 14, TOWNSHIP 7 NORTH, RANGE 69 WEST OF THE 6TH P.M., CITY OF FORT COLLINS, COUNTY OF LARIMER, STATE OF COLORADO



CURVE TABLE					
CURVE	DELTA	RADIUS	LENGTH	BEARING	CHORD
C1	36°45'53"	31.72'	20.35'	N72°27'44"E	20.01'
C2	76°33'52"	18.46'	24.67'	N42°08'36"W	22.87'
C3	90°21'09"	5.00'	7.88'	N44°49'26"E	7.09'
C4	89°38'51"	3.00'	4.69'	N45°10'34"W	4.23'
C5	90°00'00"	5.00'	7.85'	N45°00'00"W	7.07'
C6	10°29'36"	15.00'	2.75'	N05°14'48"W	2.74'
C7	9°21'07"	30.00'	4.90'	N04°40'34"E	4.89'
C8	9°21'07"	30.00'	4.90'	S04°40'34"W	4.89'
C9	28°54'51"	25.00'	12.62'	S14°27'26"W	12.48'
C10	32°52'27"	44.17'	25.35'	N17°42'39"E	25.00'
C11	14°59'18"	40.00'	10.46'	N07°40'18"W	10.43'
C12	15°37'40"	90.00'	24.55'	N07°21'06"W	24.47'
C13	50°57'25"	20.00'	17.79'	N25°00'59"W	17.21'

LINE TABLE		
LINE	LENGTH	BEARING
L1	24.54'	N34° 19' 45"E
L2	312.01'	N00° 29' 44"E
L3	26.39'	N33° 56' 45"W
L4	132.22'	N89° 35' 52"W
L5	21.48'	N00° 00' 20"W
L6	124.91'	S89° 56' 28"E
L7	22.73'	S00° 03' 47"W
L8	42.24'	N00° 00' 00"E
L9	17.53'	N09° 21' 07"E
L10	27.17'	N00° 00' 00"E
L11	5.50'	N00° 00' 00"E
L12	16.98'	N00° 00' 02"W
L13	140.17'	N00° 27' 44"E

LEGEND

- EASEMENT LINE
- EXISTING RIGHT-OF-WAY
- PLATTED BOUNDARY LINE
- LOT LINE
- FOUND CORNER AS DESCRIBED
- SET #4 REBAR, 16" LONG, WITH 1" DIA. BLUE PLASTIC CAP, LS 38470

NORTH

30 0 30 60 90 Feet

(US SURVEY FEET)
1 inch = 30 ft.

PRELIMINARY

Robert C. Tessely
Registered Professional Land Surveyor
Colorado Registration No. 38470
For and on behalf of Northern Engineering Services, Inc.

NOTICE:
According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years after the date of the certificate shown hereon.

SECTION: 14
TOWNSHIP: 7
RANGE: 69 W of the 6th PM

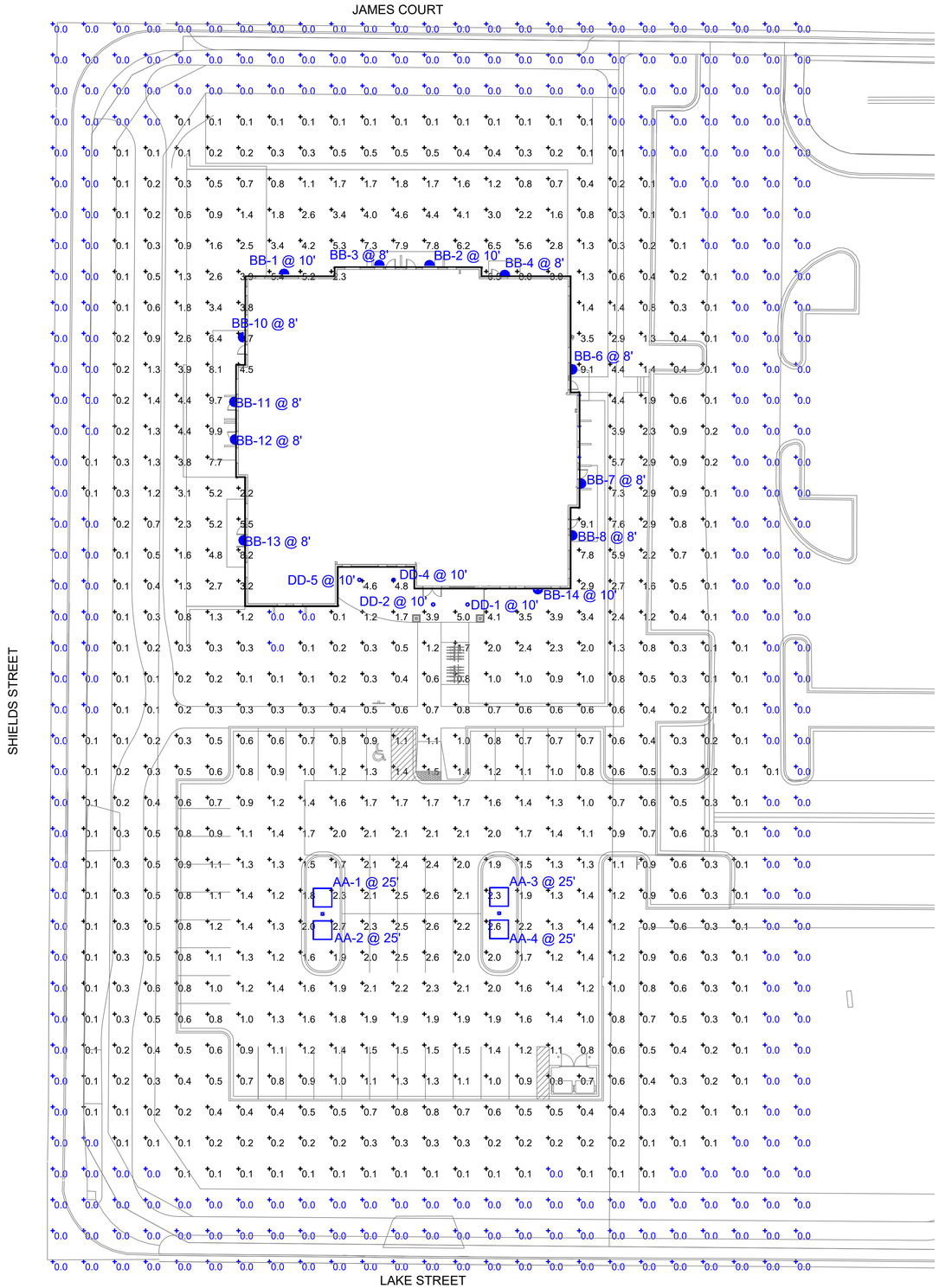
NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

DATE: 10/3/18
SCALE: 1"=30'
REVIEWED BY: R. Tessely
PROJECT: 232-047
DESIGNED BY:
DRAWN BY: L. Smith

NEC LAKE AND SHIELDS

SECTION 14, T7N, R69W
CITY OF FORT COLLINS, COLORADO

Sheet
2
Of 2 Sheets



SITE PHOTOMETRIC PLAN

SCALE: 1" = 20'

N

alm2s
712 WHALERS WAY SUITE, B-100
FORT COLLINS, CO 80525
(970) 223-1820
www.alm2s.com

Sunshine House #213

CSURF

Fort Collins, CO.

APS, INC.
ELECTRICAL ENGINEERS
ADONAI
9249 S. BROADWAY #200-836
HIGHLANDS RANCH, CO 80129
303-287-8091
7726 PARK RIDGE CIRCLE
FORT COLLINS, CO 80528
970-206-0269

NO	ISSUE	DATE

PROJECT	APS..621.18
DATE	10/2/18
DRAWN	SJM

PHOTOMETRIC PLAN

FILE NAME:

0 1/2" 1" 2"

PRINTED

PM.1

AS1 LED
LED Area Luminaire

AERIS

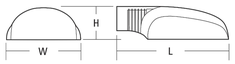
Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications



EPA:	0.7 ft² (0.07 m²)
Length:	22-1/4" (56.4 cm)
Width:	13" (33.0 cm)
Height:	6-3/8" (15.9 cm)
Weight (max):	33 lbs (14.8 kg)

Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a shaded background. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability1
- This luminaire is part of an A+ Certified solution for ROAM®2 or XPoint™ Wireless control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a shaded background[1]

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: Link to Roam; Link to DTL DLL

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: AS1 LED 42C 700 40K SR5 MVOLT SPA DDBXD

AS1 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting
AS1 LED	42C 42 LEDs (one engine)	350 350mA 530 530mA 700 700mA	30K 3000 K 40K 4000 K 50K 5000 K	SR2 Type II SR4 Type IV SR3 Type III SR5 Type V	MVOLT[1] 240[1] 480 120[1] 277[1] 208[1] 347	SPA Square pole mounting RPA Round pole mounting WBA Wall bracket

Control Options			Other Options		Finish (required)	
Shipped installed			SF Single fuse (120, 277, 347V)[1]		DDBXD	Dark bronze
PER NEMA twist-lock receptacle only (no controls)		**Shipped separately**[4]	DF Double fuse (208, 240, 480V)[1]		DBLXD	Black
PER5 Five-wire receptacle only (no controls)[2]	PNMTD3 Part night, dim till dawn[5]	VG Vandal guard	DFL Diffusing lens		DNAXD	Natural aluminum
PER7 Seven-wire receptacle only (no controls)[2]	PNMT5D3 Part night, dim 5 hrs[5]				DWHXD	White
DMG 0-10V dimming driver (no controls)[3]	PNMT6D3 Part night, dim 6 hrs[5]				DDBTXD	Textured dark bronze
BL30 Bi-level switched dimming, 30%[4,5]	PNMT7D3 Part night, dim 7 hrs[5]				DBLBXD	Textured black
BL50 Bi-level switched dimming, 50%[4,5]					DNATXD	Textured natural aluminum
					DWHGXD	Textured white

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com

FIXTURE TYPE AA

D-Series Size 1
LED Wall Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

dsseries

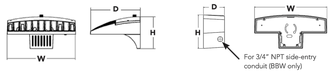
Specifications

Luminaire

Width:	13-3/4" (34.9 cm)	**Weight:**	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, ELCW)

Width:	13-3/4" (34.9 cm)	**BBW Weight:**	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	**ELCW Weight:**	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		



Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options	Other Options	Finish (required)
DSXW1 LED	10C 10 LEDs (one engine) 20C 20 LEDs (two engines)	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium ASYDF Asymmetric diffuse	MVOLT[1] 120[1] 208[1] 240[1] 277[1] 347[2] 480[2]	**Shipped included** (blank) Surface mounting bracket BBW Surface-mounted back box (for conduit entry)[3]	**Shipped installed** PE Photoelectric cell, button type[4] DMG 0-10V dimming driver (no controls) PIR 180° motion/ambient light sensor, <15' mtg ht[4] PIRH 180° motion/ambient light sensor, 15-30' mtg ht[4] ELCW Emergency battery backup (includes external component enclosure)[4]	**Shipped installed** SF Single fuse (120, 277 or 347V)[1] DF Double fuse (208, 240 or 480V)[1] HS House-side shield[8] SPD Separate surge protection[9] **Shipped separately** BSW Bird-deterrent spikes WG Wire guard VG Vandal guard DDL Diffused drop lens	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white DSSTXD Textured sandstone

NOTES
1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
2. Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
3. Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
4. Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
5. PIR specifies the Sensor Switch SBGR-10-DDP control; PIRH specifies the Sensor Switch SBGR-6-DDP control; see Motion Sensor Guide for details. Includes ambient light sensor. Not available with "PE" option (button type photocell). Dimming driver standard. Not available with 20 LED/1000 mA configuration (DSXW1 LED 20C 1000).
6. Cold weather (-20C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with 347 or 480 voltage options. Emergency components located in back box housing. Emergency mode IES files located on product page at www.lithonia.com
7. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option. Not available with ELCW.
8. Also available as a separate accessory; see Accessories information.
9. See the electrical section on page 3 for more details.

Accessories
Ordered and shipped separately.

DSXWHS U	House-side shield (one per light engine)
DSXWBSW U	Bird-deterrent spikes
DSXWWG U	Wire guard accessory
DSXWTVG U	Vandal guard accessory

LITHONIA LIGHTING

FIXTURE TYPE BB

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

INTENDED USE — The 6" Wafer™ LED recessed downlight with remote driver box combines high quality light output and efficiency while eliminating the pot light housing for competitive affordability. This innovative wafer-slim Type IC design allows easy installation for new construction or remodel from below the ceiling without the requirement of a pot light housing. The LED module maintains at least 70% light output for 50,000 hours. These Wafer™ LED downlights are intended for closets, attics, hallways, bathrooms, kitchens, basements, soffits, entry ways, porches, garages, stairwells, corridors, nursing/retirement homes, condos, elevators, apartments, and any other small areas.

CONSTRUCTION — IC rated driver and fixture - approved for direct contact with insulation. Aluminum die cast outer frame. Durable, powder coat paint to prevent rust. Round fixture with integral edge-lit LED's. Steel spring clip for easy installation. Plenum rated cable connector to connect from module to remote driver box. Isolated driver integrated inside steel remote box with four 7/8" knockouts with slots for pryout. Suitable for pulling wires with the 12 cubic-inch wiring compartment to accomodate up to (8) 14 gauge insulated conductors, or (6) 12 gauge insulated conductors; making the Wafer LED Downlights much easier to wire in 2in/2out (plus ground) daisy-chaine applications and contractor friendly.

INSTALLATION — Ideal for shallow ceiling plenum; no housing required. Steel spring clip for easy installation. 6" cut out template is provided to ensure the correct size hole is cut into ceiling for proper installation of the trim. Size of hole should not exceed 6 1/4 inches for this product. Suitable for installation in t-grid and drop ceiling applications. 2" plenum space required for installation of the remote drive box.

OPTICS — Edge-lit LED technology uses light guided plate to distribute light. Polycarbonate lens provides even illumination throughout the space. Utilized 2700K, 3000K, 3500K, 4000K and 5000K color temperature LEDs.

ELECTRICAL — Multi-volt (120-277V, 50/60Hz) proprietary remote LED driver/splice box, with two (2) additional low-voltage wires for 0-10v dimming, down to 10% (depending on dimmer model and application). High efficient driver with power factor > 0.9. Ambient operating temperature: -40°F (-40°C) to +104°F (+40°C).

LISTINGS — CSA certified to Canadian and US Safety Standards. ENERGY STAR® certified product. Air Tight certified in accordance with ASTM E283-2004. Wet Location Listed.

WARRANTY — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Catalog Number

Notes

Type

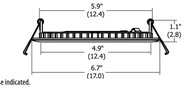
Wafer™ LED Recessed Downlight

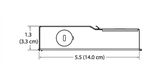
WF6 MVOLT
6" LED Module

IC/Non-IC
New Construction/Remodel

Specifications

Aperture:	4.9 (12.4)
Ceiling opening:	6 (15.2)
Overlap trim:	6.7 (17)
Height:	1.1 (2.8)





All dimensions are inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION For shortest lead times, configure product using **standard options (shown in bold).** **Example:** WF6 LED 30K MVOLT MW

WF6 Series	Lamp	CCT/CRI/W/Lumens[1]	Voltage	Finish[2]
WF6 6" Wafer™ LED downlight	LED LED	27K 2700K/80CRI/13.8W/1000L 30K 3000K/80CRI/13W/1020L 35K 3500K/80CRI/13.4W/1100L 40K 4000K/80CRI/13.6W/1200L 50K 5000K/80CRI/14.4W/1210L	MVOLT Multi-Volt (120-277V)	MW Matte white MB Matte black BN Brushed nickel ORB Oil-rubbed bronze

Accessories: *Order as separate catalog number.*

WF6 PAN R12	6" new construction pan, retail pack of 12
WFJB U	Remodel joist bar
WFEXC6 U	6' FT4 cable
WFEXC10 U	10' FT4 cable
WFEXC20 U	20' FT4 cable


WF6_Pan


Joist


Extension Cable

Notes
1. Total system delivered lumens.
2. Only stocked in Matte White finish, enter non-stock order for other color finishes there is a 45 day lead time.

DOWNLIGHTING WF6 MVOLT

FIXTURE TYPE DD

712 WHALERS WAY SUITE, B-100
FORT COLLINS, CO 80525
(970) 223-1820
www.alm2s.com

Sunshine House #213
CSURF
Fort Collins, CO.

LIGHT FIXTURE MOUNTING HEIGHT (TYPICAL)

Luminaire Locations

		Location						Aim		
No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z
1	AA	189599.00	124513.80	25.00	25.00	0.00	0.00	189599.00	124515.50	0.00
2	AA	189599.00	124513.80	25.00	25.00	180.00	0.00	189599.00	124512.00	0.00
3	AA	189656.00	124514.00	25.00	25.00	0.00	0.00	189656.00	124515.80	0.00
4	AA	189656.00	124514.00	25.00	25.00	180.00	0.00	189656.00	124512.30	0.00
1	BB	189586.50	124720.60	10.00	10.00	0.00	0.00	189586.50	124720.60	0.00
2	BB	189633.50	124723.40	10.00	10.00	0.00	0.00	189633.50	124723.40	0.00
3	BB	189617.30	124723.50	8.00	8.00	0.00	0.00	189617.30	124723.50	0.00
4	BB	189657.80	124720.30	8.00	8.00	0.00	0.00	189657.80	124720.30	0.00
6	BB	189679.60	124689.80	8.00	8.00	90.00	0.00	189679.60	124689.80	0.00
7	BB	189682.50	124652.90	8.00	8.00	90.00	0.00	189682.50	124652.90	0.00
8	BB	189679.60	124636.10	8.00	8.00	90.00	0.00	189679.60	124636.10	0.00
10	BB	189573.30	124700.10	8.00	8.00	270.00	0.00	189573.30	124700.10	0.00
11	BB	189570.50	124679.30	8.00	8.00	270.00	0.00	189570.50	124679.30	0.00
12	BB	189570.70	124667.10	8.00	8.00	270.00	0.00	189570.70	124667.10	0.00
13	BB	189573.50	124634.50	8.00	8.00	270.00	0.00	189573.50	124634.50	0.00
14	BB	189668.50	124618.70	10.00	10.00	180.00	0.00	189668.50	124618.70	0.00
1	DD	189645.80	124613.80	10.00	10.00	0.00	0.00	189645.80	124613.80	0.00
2	DD	189634.70	124613.80	10.00	10.00	0.00	0.00	189634.70	124613.80	0.00
4	DD	189621.90	124621.70	10.00	10.00	0.00	0.00	189621.90	124621.70	0.00
5	DD	189610.90	124621.70	10.00	10.00	0.00	0.00	189610.90	124621.70	0.00

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
□	AA	4	Lithonia Lighting	AS1 LED 42C 700 30K SR5 MVOLT	AS1 AREA LIGHT 42 LEDs 700 mA DRIVE CURRENT 30K COLOR TEMP TYPE 5 DISTRIBUTION	HLM LIGHT ENGINE	1	AS1_LED_42C_700_30K_SR5_MVOLT.ies	7453	1	98
◠	BB	12	Lithonia Lighting	DSXW1 LED 20C 700 30K T4M MVOLT	DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE T4M OPTIC, 3000K, @ 700mA.	LED	1	DSXW1_LED_20C_700_30K_T4M_MVOLT.ies	4975	1	45.7
○	DD	4	Lithonia Lighting	WF6 LED 30K	6" Ultra-Thin LED Wafer Downlight, 3000K CCT, 120V	LED	1	WF6_LED_30K.ies	1032	1	12.933

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #5	+	0.8 fc	9.9 fc	0.0 fc	N/A	N/A

APS, INC.
ELECTRICAL ENGINEERS
9249 S. BROADWAY #200–836
HIGHLANDS RANCH, CO 80129
303–287–8091
7726 PARK RIDGE CIRCLE
FORT COLLINS, CO 80528
970–206–0269

NO	ISSUE	DATE

PROJECT	APS..621.18
DATE	10/2/18
DRAWN	SJM

LIGHTING SCHEDULES AND LOCATIONS

PM.2

FILE NAME:

PRINTED

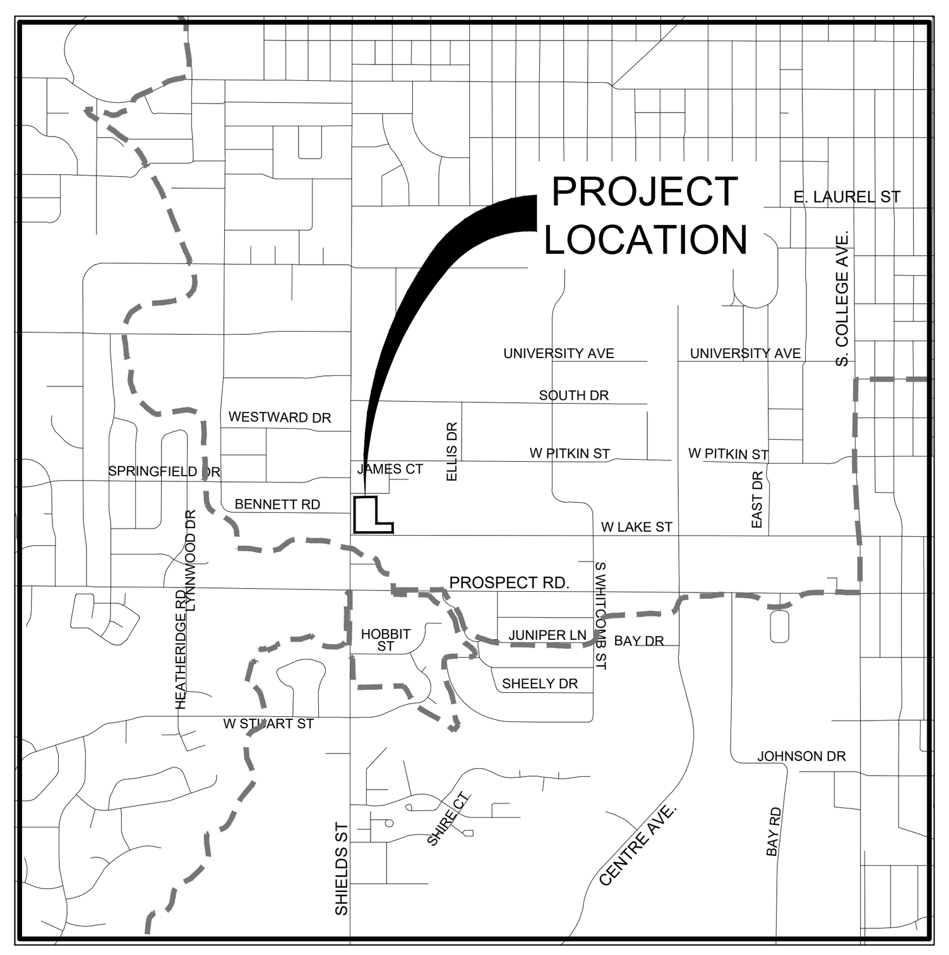
2" 1" 1/2 0

FINAL UTILITY PLANS FOR

NEC LAKE & SHIELDS

A TRACT OF LAND LOCATED IN THE SOUTHWEST QUARTER OF SECTION 14, TOWNSHIP 7 NORTH, RANGE 69 WEST OF THE 6TH P.M., CITY OF FORT COLLINS, COUNTY OF LARIMER, STATE OF COLORADO

OCTOBER 2018



VICINITY MAP

1"=2000'

PROJECT BENCHMARKS:

PROJECT DATUM: NAVD 88

BENCHMARK #1: CITY OF FORT COLLINS BENCHMARK 19-97

AT THE SOUTHEAST CORNER OF WEST ELIZABETH AND SHIELDS ST., ON A CONCRETE TRAFFIC SIGNALBASE.

ELEVATION = 5025.74

BENCHMARK #2: CITY OF FORT COLLINS BENCHMARK 29-92

APPROXIMATE 300 FEET SOUTH OF WEST PROSPECT RD. AND SHIELDS ST., ON THE NORTH END OF THE WEST BRIDGE PARAPET WALL.

ELEVATION = 5025.67

PLEASE NOTE: THIS PLAN SET IS USING NAVD88 FOR A VERTICAL DATUM. SURROUNDING DEVELOPMENTS HAVE USED NGVD29 UNADJUSTED FOR THEIR VERTICAL DATUMS.

IF NGVD29 UNADJUSTED DATUM IS REQUIRE FOR ANY PURPOSE, THE FOLLOWING EQUATION SHOULD BE USED:
NGVD29 UNADJUSTED = NAVD88 - 3.17

BASIS OF BEARING:

THE BASIS OF BEARINGS IS THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 14 AS BEARING NORTH 00°29'45" EAST.

ORIGINAL FIELD SURVEY BY:

ORIGINAL FIELD SURVEY
NORTHERN ENGINEERING SERVICES, INC.
PROJECT NUMBER: 232-047
DATE: JULY 13, 2018

DISCLAIMER STATEMENT:

These plans have been reviewed by the City of Fort Collins for concept only. The review does not imply responsibility by the reviewing department, the City of Fort Collins Engineer, or the City of Fort Collins for accuracy and correctness of the calculations. Furthermore, the review does not imply that quantities of items on the plans are the final quantities required. The review shall not be construed for any reason as acceptance of financial responsibility by the City of Fort Collins for additional quantities of items shown that may be required during the construction phase.

CERTIFICATION STATEMENT:

I hereby affirm that these final construction plans were prepared under my direct supervision, in accordance with all applicable City of Fort Collins and State of Colorado standards and statutes, respectively; and that I am fully responsible for the accuracy of all design. revisions, and record conditions that I have noted on these plans.

CONTACT INFORMATION

PROJECT TEAM:

OWNER/APPLICANT
CSURF
Michael 'Bo' Brown LEED A.P.
2537 Research Blvd., Suite 200
Fort Collins, CO 80526
(970) 491-2625

LANDSCAPE ARCHITECT
Cathy Mathis, APA
TB Group
444 Mountain Avenue
Berthoud, Colorado 80513
(970) 532-5891

CIVIL ENGINEER
Northern Engineering Services, Inc.
Cody Snowdon, PE
301 North Howes Street, Suite 100
Fort Collins, CO 80524
(970) 221-4158

SURVEYOR
Northern Engineering Services, Inc.
Steve Lund, PLS
301 North Howes Street, Suite 100
Fort Collins, CO 80524
(970) 221-4158

TRAFFIC ENGINEER
Delich Associates
Matt Delich, PE
2272 Glen Haven Drive
Loveland, CO 80538-4903
(970) 669-2061

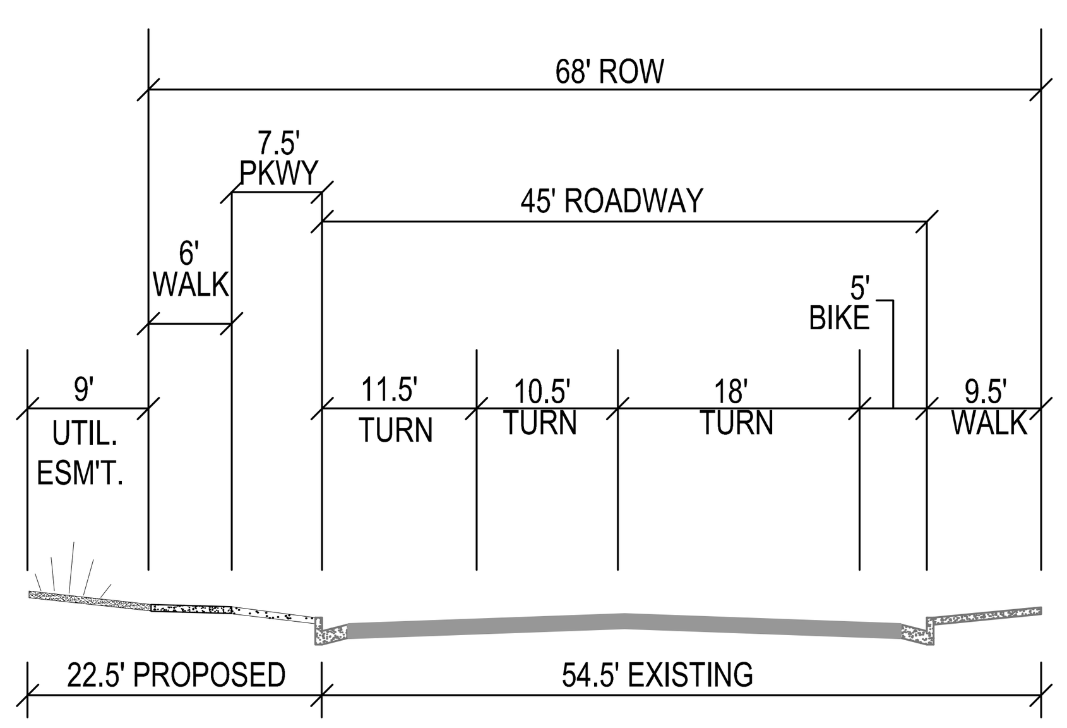
UTILITY CONTACT LIST: *

UTILITY COMPANY			PHONE NUMBER
GAS	Xcel Energy	Stephanie Rich	(970) 225-7828
ELECTRIC	City of Fort Collins Light & Power	Rob Irish	(970) 224-6167
CABLE	Xfinity	Don Kapperman	(970) 567-0245
TELECOM.	Centurylink	Bill Johnson	(970) 490-7501
WATER	City of Fort Collins Utilities	Shane Boyle	(970) 221-6339
WASTEWATER	City of Fort Collins Utilities	Shane Boyle	(970) 221-6339
STORMWATER	City of Fort Collins Utilities	Shane Boyle	(970) 221-6339

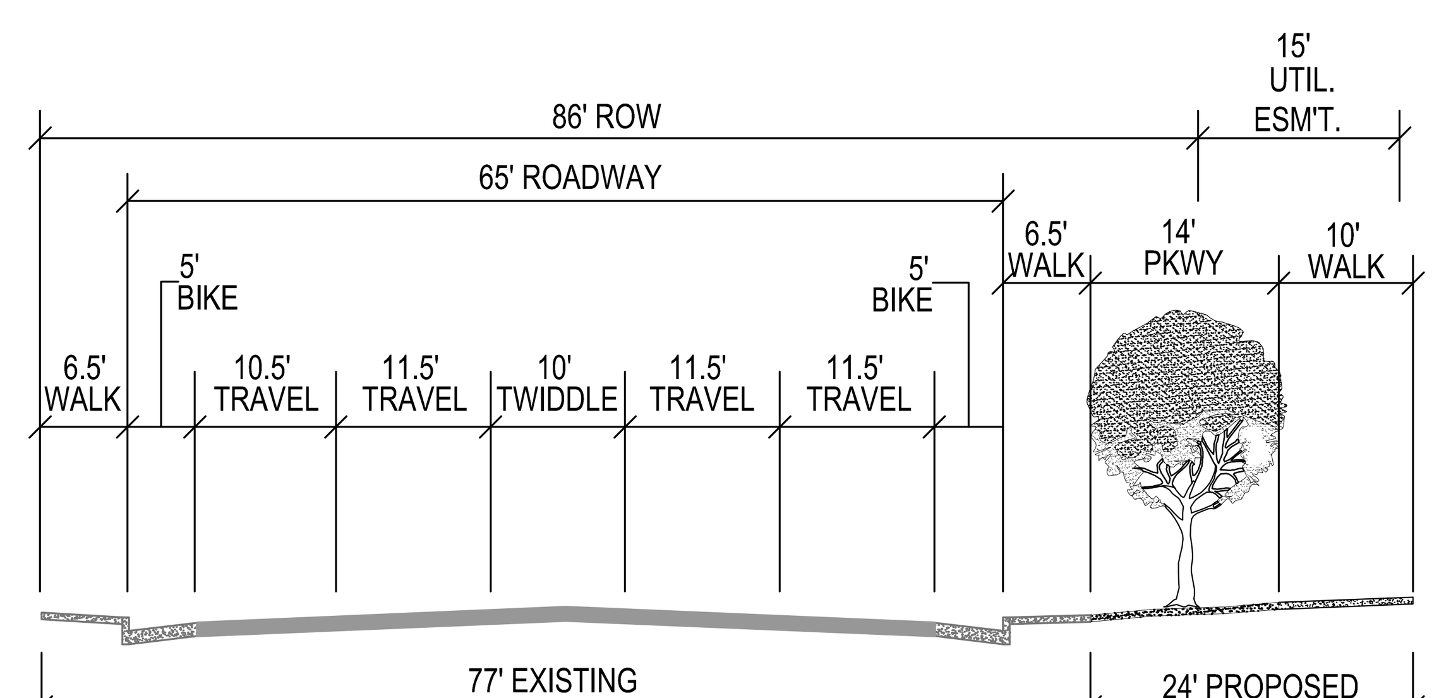
* This list is provided as a courtesy reference only. Northern Engineering Services assumes no responsibility for the accuracy or completeness of this list. In no way shall this list relinquish the Contractor's responsibility for locating all utilities prior to commencing any construction activity. Please contact the Utility Notification Center of Colorado (UNCC) at 811 for additional information.

** The underground utility locates are based upon the best available information at the time of locating. Contractor acknowledges that it is common for underground facility owner maps to have errors and omissions of data shown. Consequently, it is the Contractor's sole responsibility to field verify the location of all utilities prior to construction, and notify the Engineer of any discrepancies found.

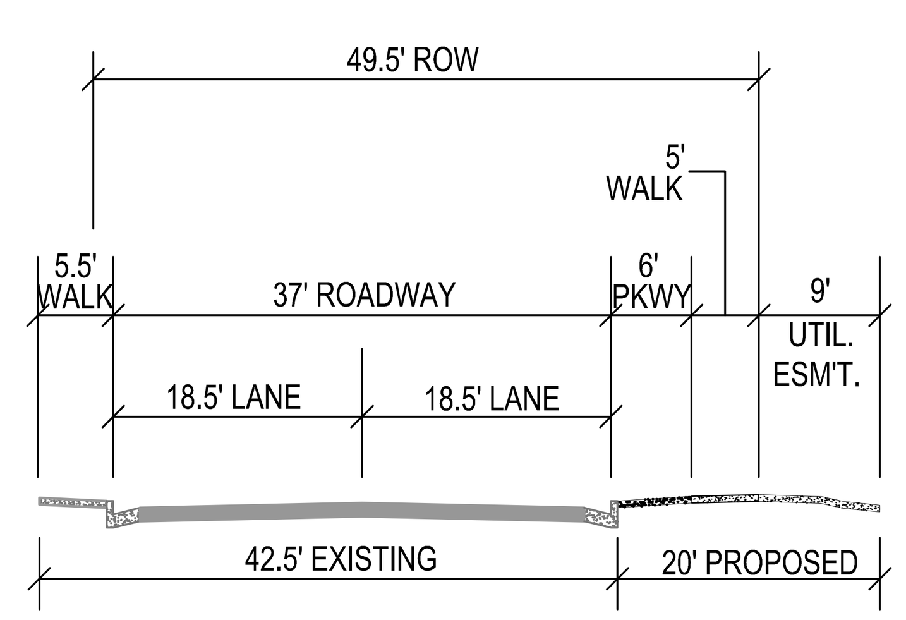
SHEET INDEX



LAKE STREET



SHIELDS STREET



JAMES COURT

CALL UTILITY NOTIFICATION CENTER OF COLORADO

Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

NORTHERN ENGINEERING

DATE: 10/03/2018
SCALE: N/A
REVIEWED BY: C. SNOWDON
PROJECT: 232-047
DESIGNED BY: B. MATHISEN
DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS
COVER SHEET

Sheet C0.00

A. GENERAL NOTES

1. All materials, workmanship, and construction of ppublic improvements shall meet or exceed the standards and specifications set forth in the Larimer County Urban Area Street Standards and applicable state and federal regulations. Where there is conflict between these plans and the specifications, or any applicable standards, the most restrictive standard shall apply. All work shall be inspected and approved by the City of Fort Collins.

2. All references to any published standards shall refer to the latest revision of said standard, unless specifically stated otherwise.

3. These public improvement construction plans shall be valid for a period of three years from the date of approval by the City of Fort Collins Engineer. Use of these plans after the expiration date will require a new review and approval process by the City of Fort Collins prior to commencement of any work shown in these plans.

4. The engineer who has prepared these plans, by execution and/or seal hereof, does hereby affirm responsibility to the City of Fort Collins, as beneficiary of said engineer's work, for any errors and omissions contained in these plans, and approval of these plans by the City of Fort Collins Engineer shall not relieve the engineer who has prepared these plans of all such responsibility. Further, to the extent permitted by law, the engineer hereby agrees to hold harmless and indemnify the City of Fort Collins, and its officers and employees, from and against all liabilities, claims, and demands which may arise from any errors and omissions contained in these plans.

5. All storm sewer construction, as well as power and other "dry" utility installations, shall conform to the City of Fort Collins standards and specifications current at the date of approval of the plans by the City of Fort Collins Engineer.

6. The type, size, location and number of all known underground utilities are approximate when shown on the drawings. It shall be the responsibility of the Developer to verify the existence and location of all underground utilities along the route of the work before commencing new construction. The Developer shall be responsible for unknown underground utilities.

7. The Developer shall contact the Utility Notification Center of Colorado (UNCC) at 1-800-922-1987, at least 2 working days prior to beginning excavation or grading, to have all registered utility locations marked. Other unregistered utility entities (i.e. ditch / irrigation company) are to be located by contacting the respective representative. Utility service laterals are also to be located prior to beginning excavation or grading. It shall be the responsibility of the Developer to relocate all existing utilities that conflict with the proposed improvements shown on these plans.

8. The Developer shall be responsible for protecting all utilities during construction and for coordinating with the appropriate utility company for any utility crossings required.

9. If a conflict exists between existing and proposed utilities and/or a design modification is required, the Developer shall coordinate with the engineer to modify the design. Design modification(s) must be approved by the City of Fort Collins prior to beginning construction.

10. The Developer shall coordinate and cooperate with the City of Fort Collins, and all utility companies involved, to assure that the work is accomplished in a timely fashion and with a minimum disruption of service. The Developer shall be responsible for contacting, in advance, all parties affected by any disruption of any utility service as well as the utility companies.

11. No work may commence within any public storm water, sanitary sewer or potable water system until the Developer notifies the utility provider. Notification shall be a minimum of 2 working days prior to commencement of any work. At the discretion of the water utility provider, a pre-construction meeting may be required prior to commencement of any work.

12. The Developer shall sequence installation of utilities in such a manner as to minimize potential utility conflicts. In general, storm sewer and sanitary sewer should be constructed prior to installation of the water lines and dry utilities.

13. The minimum cover over water lines is 4.5 feet and the maximum cover is 5.5 feet unless otherwise noted in the plans and approved by the Water Utility.

14. A State Construction Dewatering Wastewater Discharge Permit is required if dewatering is required in order to install utilities or if water is discharged into a storm sewer, channel, irrigation ditch or any waters of the United States.

15. The Developer shall comply with all terms and conditions of the Colorado Permit for Storm Water Discharge (Contact Colorado Department of Health, Water Quality Control Division, (303) 692-3590), the Storm Water Management Plan, and the Erosion Control Plan.

16. The City of Fort Collins shall not be responsible for the maintenance of storm drainage facilities located on private property. Maintenance of onsite drainage facilities shall be the responsibility of the property owner(s).

17. Prior to final inspection and acceptance by the City of Fort Collins, certification of the drainage facilities, by a registered engineer, must be submitted to and approved by the Stormwater Utility Department. Certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of a certificate of occupancy for single family units. For commercial properties, certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of any building permits in excess of those allowed prior to certification per the Development Agreement.

18. The City of Fort Collins shall not be responsible for any damages or injuries sustained in this Development as a result of groundwater seepage, whether resulting from groundwater flooding, structural damage or other damage unless such damage or injuries are sustained as a result of the City of Fort Collins failure to properly maintain its water, wastewater, and/or storm drainage facilities in the development.

19. All recommendations of the FINAL DRAINAGE REPORT FOR NEC LAKE & SHIELDS dated 10/03/2018 by Northern Engineering Services, Inc., shall be followed and implemented.

20. Temporary erosion control during construction shall be provided as shown on the Erosion Control Plan. All erosion control measures shall be maintained in good repair by the Developer, until such time as the entire disturbed areas is stabilized with hard surface or landscaping.

21. The Developer shall be responsible for insuring that no mud or debris shall be tracked onto the existing public street system. Mud and debris must be removed within 24 hours by an appropriate mechanical method (i.e. machine broom sweep, light duty front-end loader, etc.) or as approved by the the City of Fort Collins street inspector.

22. No work may commence within any improved or unimproved public Right-of-Way until a Right-of-Way Permit or Development Construction Permit is obtained, if applicable.

23. The Developer shall be responsible for obtaining all necessary permits for all applicable agencies prior to commencement of construction. The Developer shall notify the the City of Fort Collins Inspector (Fort Collins - 221-6605) and the City of Fort Collins Erosion Control Inspector (Fort Collins - 221-6700) at least 2 working days prior to the start of any earth disturbing activity, or construction on any and all public improvements. If the City of Fort Collins Engineer is not available after proper notice of construction activity has been provided, the Developer may commence work in the Engineer's absence. However, the City of Fort Collins reserves the right not to accept the improvement if subsequent testing reveals an improper installation.

24. The Developer shall be responsible for obtaining soils tests within the Public Right-of-Way after right of way grading and all utility trench work is complete and prior to the placement of curb, gutter, sidewalk and pavement. If the final soils/pavement design report does not correspond with the results of the original geotechnical report, the Developer shall be responsible for a re-design of the subject pavement section or, the Developer may use the City of Fort Collins' default pavement thickness section(s). Regardless of the option used, all final soils/pavement design reports shall be prepared by a licensed Professional Engineer. The final report shall be submitted to the Inspector a minimum of 10 working days prior to placement of base and asphalt. Placement of curb, gutter, sidewalk, base and asphalt shall not occur until the City of Fort Collins Engineer approves the final report.

25. The contractor shall hire a licensed engineer or land surveyor to survey the constructed elevations of the street subgrade and the gutter flowline at all intersections, inlets, and other locations requested by the the City of Fort Collins inspector. The engineer or surveyor must certify in a letter to the City of Fort Collins that these elevations conform to the approved plans and specifications. Any deviations shall be noted in the letter and then resolved with the City of Fort Collins before installation of base course or asphalt will be allowed on the streets.

26. All utility installations within or across the roadbed of new residential roads must be completed prior to the final stages of road construction. For the purposes of these standards, any work except c/g above the subgrade is considered final stage work. All service lines must be stubbed to the property lines and marked so as to reduce the excavation necessary for building connections.

27. Portions of Larimer County are within overlay districts. The Larimer County Flood Plain Resolution should be referred to for additional criteria for roads within these districts.

28. All road construction in areas designated as Wild Fire Hazard Areas shall be done in accordance with the construction criteria as established in the Wild Fire Hazard Area Mitigation Regulations in force at the time of final plat approval.

29. Prior to the commencement of any construction, the contractor shall contact the City of Fort Collins Forester to schedule a site inspection for any tree removal requiring a permit.

30. The Developer shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security. Refer to OSHA Publication 2226, Excavating and Trenching.

31. The Developer shall submit a Construction Traffic Control Plan, in accordance with MUTCD, to the appropriate Right-of-Way authority. (The the City of Fort Collins, Larimer County, Colorado), for approval, prior to any construction activities within, or affecting, the Right-of-Way. The Developer shall be responsible for providing any and all traffic control devices as may be required by the construction activities.

32. Prior to the commencement of any construction that will affect traffic signs of any type, the contractor shall contact the City of Fort Collins Traffic Operations Department, who will temporarily remove or relocate the sign at no cost to the contractor, however, if the contractor moves the traffic sign then the contractor will be charged for the labor, materials and equipment to reinstall the sign as needed.

33. The Developer is responsible for all costs for the initial installation of traffic signing and striping for the Development related to the Development's local street operations. In addition, the Developer is responsible for all costs for traffic signing and striping related to directing traffic access to and from the Development.

34. There shall be no site construction activities on Saturdays, unless specifically approved by the City of Fort Collins Engineer, and no site construction activities on Sundays or holidays, unless there is prior written approval by Larimer County.

35. The Developer is responsible for providing all labor and materials necessary for the completion of the intended improvements, shown on these drawings, or designated to be provided, installed, or constructed, unless specifically noted otherwise.

36. Dimensions for layout and construction are not to be scaled from any drawing. If pertinent dimensions are not shown, contact the Designer for clarification, and annotate the dimension on the as-built record drawings.

37. The Developer shall have, onsite at all times, one (1) signed copy of the approved plans, one (1) copy of the appropriate standards and specifications, and a copy of any permits and extension agreements needed for the job.

38. If, during the construction process, conditions are encountered which could indicate a situation that is not identified in the plans or specifications, the Developer shall contact the Designer and the City of Fort Collins Engineer immediately.

39. The Developer shall be responsible for recording as-built information on a set of record drawings kept on the construction site, and available to the Larimer County's Inspector at all times. Upon completion of the work, the contractor(s) shall submit record drawings to the City of Fort Collins Engineer.

40. The Designer shall provide, in this location on the plan, the location and description of the nearest survey benchmarks (2) for the project as well as the basis of bearings. The information shall be as follows:

PROJECT DATUM: NAVD 88

BENCHMARK #1: CITY OF FORT COLLINS BENCHMARK 19-97

AT THE SOUTHEAST CORNER OF WEST ELIZABETH AND SHIELDS ST., ON A CONCRETE TRAFFIC SIGNALBASE.

ELEVATION = 5025.74

BENCHMARK #2: CITY OF FORT COLLINS BENCHMARK 29-92

APPROXIMATE 300 FEET SOUTH OF WEST PROSPECT RD. AND SHIELDS ST., ON THE NORTH END OF THE WEST BRIDGE PARAPET WALL.

ELEVATION = 5025.67

PLEASE NOTE: THIS PLAN SET IS USING NAVD88 FOR A VERTICAL DATUM. SURROUNDING DEVELOPMENTS HAVE USED NGVD29 UNADJUSTED FOR THEIR VERTICAL DATUMS.

IF NGVD29 UNADJUSTED DATUM IS REQUIRE FOR ANY PURPOSE, THE FOLLOWING EQUATION SHOULD BE USED:
NGVD29 UNADJUSTED = NAVD88 - 3.17

BASIS OF BEARING:

THE BASIS OF BEARINGS IS THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 14 AS BEARING NORTH 00°29'45" EAST.

41. All stationing is based on centerline of roadways unless otherwise noted.

42. Damaged curb, gutter and sidewalk existing prior to construction, as well as existing fences, trees, streets, sidewalks, curbs and gutters, landscaping, structures, and improvements destroyed, damaged or removed due to construction of this project, shall be replaced or restored in like kind at the Developer's expense, unless otherwise indicated on these plans, prior to the acceptance of completed improvements and/or prior to the issuance of the first Certificate of Occupancy.

43. When an existing asphalt street must be cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented by the City of Fort Collins Construction Inspector before any cuts are made. Patching shall be done in accordance with the City of Fort Collins Street Repair Standards. The finished patch shall blend in smoothly into the existing surface. All large patches shall be paved with an asphalt lay-down machine. In streets where more than one cut is made, an overlay of the entire street width, including the patched area, may be required. The determination of need for a complete overlay shall be made by the Larimer County Engineer and/or the City of Fort Collins Inspector at the time the cuts are made.

44. Upon completion of construction, the site shall be cleaned and restored to a condition equal to, or better than, that which existed before construction, or to the grades and condition as required by these plans.

45. Standard Handicap ramps are to be constructed at all curb returns and at all "T" intersections.

46. After acceptance by the City of Fort Collins, public improvements depicted in these plans shall be guaranteed to be free from material and workmanship defects for a minimum period of two years from the date of acceptance.

47. The City of Fort Collins shall not be responsible for the maintenance of roadway and appurtenant improvements, including storm drainage structures and pipes, for the following private streets: N.A.

48. Approved Variances are listed as follows: N.A.

CONSTRUCTION NOTES

A. Grading and Erosion Control Notes

1. The erosion control inspector must be notified at least twenty-four (24) hours prior to any construction on this site.

2. There shall be no earth-disturbing activity outside the limits designated on the accepted plans.

3. All required perimeter silt and construction fencing shall be installed prior to any land disturbing activity (stockpiling, stripping, grading, etc). All other required erosion control measures shall be installed at the appropriate time in the construction sequence as indicated in the approved project schedule, construction plans, and erosion control report.

4. At all times during construction, the Developer shall be responsible for preventing and controlling on-site erosion including keeping the property sufficiently watered so as to minimize wind blown sediment. The Developer shall also be responsible for installing and maintaining all erosion control facilities shown herein.

5. Pre-disturbance vegetation shall be protected and retained wherever possible. Removal or disturbance of existing vegetation shall be limited to the area(s) required for immediate construction operations, and for the shortest practical period of time.

6. All soils exposed during land disturbing activity (stripping, grading, utility installations, stockpiling, filling, etc.) shall be kept in a roughened condition by ripping or disking along land contours until mulch, vegetation, or other permanent erosion control BMPs are installed. No soils in areas outside project street rights-of-way shall remain exposed by land disturbing activity for more than thirty (30) days before required temporary or permanent erosion control (e.g. seed/mulch, landscaping, etc.) is installed, unless otherwise approved by the City/County.

7. In order to minimize erosion potential, all temporary (structural) erosion control measures shall:
   a. Be inspected at a minimum of once every two (2) weeks and after each significant storm event and repaired or reconstructed as necessary in order to ensure the continued performance of their intended function.
   b. Remain in place until such time as all the surrounding disturbed areas are sufficiently stabilized as determined by the erosion control inspector.
   c. Be removed after the site has been sufficiently stabilized as determined by the erosion control inspector.

8. When temporary erosion control measures are removed, the Developer shall be responsible for the clean up and removal of all sediment and debris from all drainage infrastructure and other public facilities.

9. The contractor shall immediately clean up any construction materials inadvertently deposited on existing streets, sidewalks, or other public rights of way, and make sure streets and walkways are cleaned at the end of each working day.

10. All retained sediments, particularly those on paved roadway surfaces, shall be removed and disposed of in a manner and location so as not to cause their release into any waters of the United States.

11. No soil stockpile shall exceed ten (10) feet in height. All soil stockpiles shall be protected from sediment transport by surface roughening, watering, and perimeter silt fencing. Any soil stockpile remaining after thirty (30) days shall be seeded and mulched.

12. The stormwater volume capacity of detention ponds will be restored and storm sewer lines will be cleaned upon completion of the project and before turning the maintenance over to the City/County or Homeowners Association (HOA).

13. City Ordinance and Colorado Discharge Permit System (CDPS) requirements make it unlawful to discharge or allow the discharge of any pollutant or contaminated water from construction sites. Pollutants include, but are not limited to discarded building materials, concrete truck washout, chemicals, oil and gas products, litter, and sanitary waste. The developer shall at all times take whatever measures are necessary to assure the proper containment and disposal of pollutants on the site in accordance with any and all applicable local, state, and federal regulations.

14. A designated area shall be provided on site for concrete truck chute washout. The area shall be constructed so as to contain washout material and located at least fifty (50) feet away from any waterway during construction. Upon completion of construction activities the concrete washout material will be removed and properly disposed of prior to the area being restored.

15. Conditions in the field may warrant erosion control measures in addition to what is shown on these plans. The Developer shall implement whatever measures are determined necessary, as directed by the City.

B. Street Improvement Notes

1. All street construction is subject to the General Notes on the cover sheet of these plans as well as the Street Improvements Notes listed here.

2. A paving section design, signed and stamped by a Colorado licensed Engineer, must be submitted to the City of Fort Collins Engineer for approval, prior to any street construction activity, (full depth asphalt sections are not permitted at a depth greater than 8 inches of asphalt). The job mix shall be submitted for approval prior to placement of any asphalt.

3. Where proposed paving adjoins existing asphalt, the existing asphalt shall be saw cut, a minimum distance of 12 inches from the existing edge, to create a clean construction joint. The Developer shall be required to remove existing pavement to a distance where a clean construction joint can be made. Wheel cuts shall not be allowed unless approved by the City of Fort Collins Engineer in Fort Collins.

4. Street subgrades shall be scarified the top 12 inches and re-compacted prior to subbase installation. No base material shall be laid until the subgrade has been inspected and approved by the City of Fort Collins Engineer.

5. Ft. Collins only. Valve boxes and manholes are to be brought up to grade at the time of pavement placement or overlay. Valve box adjusting rings are not allowed.

6. When an existing asphalt street must be cut, the street must be restored to a condition equal to or better than its original condition. The existing street condition shall be documented by the Inspector before any cuts are made. Cutting and patching shall be done in conformance with Chapter 25, Reconstruction and Repair. The finished patch shall blend smoothly into the existing surface. The determination of need for a complete overlay shall be made by the City of Fort Collins Engineer. All overlay work shall be coordinated with adjacent landowners such that future projects do not cut the new asphalt overlay work.

7. All traffic control devices shall be in conformance with these plans or as otherwise specified in M.U.T.C.D. (including Colorado supplement) and as per the Right-of-Way Work Permit traffic control plan.

8. The Developer is required to perform a gutter water flow test in the presence of the City of Fort Collins Inspector and prior to installation of asphalt. Gutters that hold more than 1/4 inch deep or 5 feet longitudinally, of water, shall be completely removed and reconstructed to drain properly.

9. Prior to placement of H.B.P. or concrete within the street and after moisture/density tests have been taken on the subgrade material (when a full depth section is proposed) or on the subgrade and base material (when a composite section is proposed), a mechanical "proof roll" will be required. The entire subgrade and/or base material shall be rolled with a heavily loaded vehicle having a total GVW of not less than 50,000 lbs. and a single axle weight of at least 18,000 lbs. with pneumatic tires inflated to not less that 90 p.s.i.g. "Proof roll" vehicles shall not travel at speeds greater than 3 m.p.h. Any portion of the subgrade or base material which exhibits excessive pumping or deformation, as determined by the City of Fort Collins Engineer, shall be reworked, replaced or otherwise modified to form a smooth, non-yielding surface. The City of Fort Collins Engineer shall be notified at least 24 hours prior to the "proof roll." All "proof rolls" shall be preformed in the presence of an Inspector.

C. Traffic Signing and Pavement Marking Construction Notes

1. All signage and marking is subject to the General Notes on the cover sheet of these plans, as well as the Traffic Signing and Marking Construction Notes listed here.

2. All symbols, including arrows, ONLYS, crosswalks, stop bars, etc. shall be pre-formed thermo-plastic.

3. All signage shall be per the City of Fort Collins Standards and these plans or as otherwise specified in MUTCD.

4. All lane lines for asphalt pavement shall receive two coats of latex paint with glass beads.

5. All lane lines for concrete pavement should be epoxy paint.

6. Prior to permanent installation of traffic striping and symbols, the Developer shall place temporary tabs or tape depicting alignment and placement of the same. Their placement shall be approved by the City of Fort Collins Traffic Engineer prior to permanent installation of striping and symbols.

7. Pre-formed thermo-plastic applications shall be as specified in these Plans and/or these Standards.

8. Epoxy applications shall be applied as specified in CDOT Standard Specifications for Road and Bridge Construction.

9. All surfaces shall be thoroughly cleaned prior to installation of striping or markings.

10. All sign posts shall utilize break-away assemblies and fasteners per the Standards.

11. A field inspection of location and installation of all signs shall be performed by the City of Fort Collins Traffic Engineer. All discrepancies identified during the field inspection must be corrected before the 2-year warranty period will begin.

12. The Developer installing signs shall be responsible for locating and protecting all underground utilities.

13. Special care shall be taken in sign location to ensure an unobstructed view of each sign.

14. Signage and striping has been determined by information available at the time of review. Prior to initiation of the warranty period,the City of Fort Collins Traffic Engineer reserves the right to require additional signage and/or striping if the City of Fort Collins Traffic Engineer determines that an unforeseen condition warrants such signage according to the MUTCD or the CDOT M and S Standards. All signage and striping shall fall under the requirements of the 2-year warranty period for new construction (except fair wear on traffic markings).

15. Sleeves for sign posts shall be required for use in islands/medians. Refer to Chapter 14, Traffic Control Devices, for additional detail.

D. Storm Drainage Notes

1. The City of Fort Collins shall not be responsible for the maintenance of storm drainage facilities located on private property. Maintenance of onsite drainage facilities shall be the responsibility of the property owner(s).

2. All recommendations of the FINAL DRAINAGE REPORT FOR NEC LAKE & SHIELDS dated 10/03/2018 by Northern Engineering Services, Inc., shall be followed and implemented.

3. Prior to final inspection and acceptance by the City of Fort Collins, certification of the drainage facilities, by a registered engineer, must by submitted to and approved by the Stormwater Utility Department. Certification shall be submitted to the Stormwater Utility Department at least two weeks prior to the release of a certificate of occupancy for single family units. For commercial properties, certification shall by submitted to the Stormwater Utility Department at least two weeks prior to the release of any building permits in excess of those allowed prior to certification per the Development Agreement.

E. Utility Notes

1. All waterline and sanitary sewer construction shall conform to the Fort Collins Utility standards and specifications current to date of construction.

2. The minimum cover over water lines is 4.5 feet and the maximum cover is 5.5 feet unless otherwise noted in the plans and approved by the water utility.

3. Water mains shall be poly-wrapped D.I.P, or PVC with tracer wire.

4. HDPE pipe may be used for 1-1/2 and 2 inch water services. The pipe shall meet the standards of AWWA 901, NSF Standard 61 and ASTM. The HDPE pipe shall be SDR 9 having a pressure rating of 200 psi. Stiffeners shall be used at all fittings and connections. Tracer wire shall be installed with the HDPE service, and shall extend up the curb stop. The curb stop shall be covered with a metal box and tracer wire test lid per City Water Detail 25.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

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City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

No. | Revisions: | By: | Date:

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

PROJECT: 232-047 | DATE: 10/03/2018
DESIGNED BY: B. MATHISEN | SCALE: N/A
DRAWN BY: B. MATHISEN | REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS

GENERAL NOTES

Sheet C0.01

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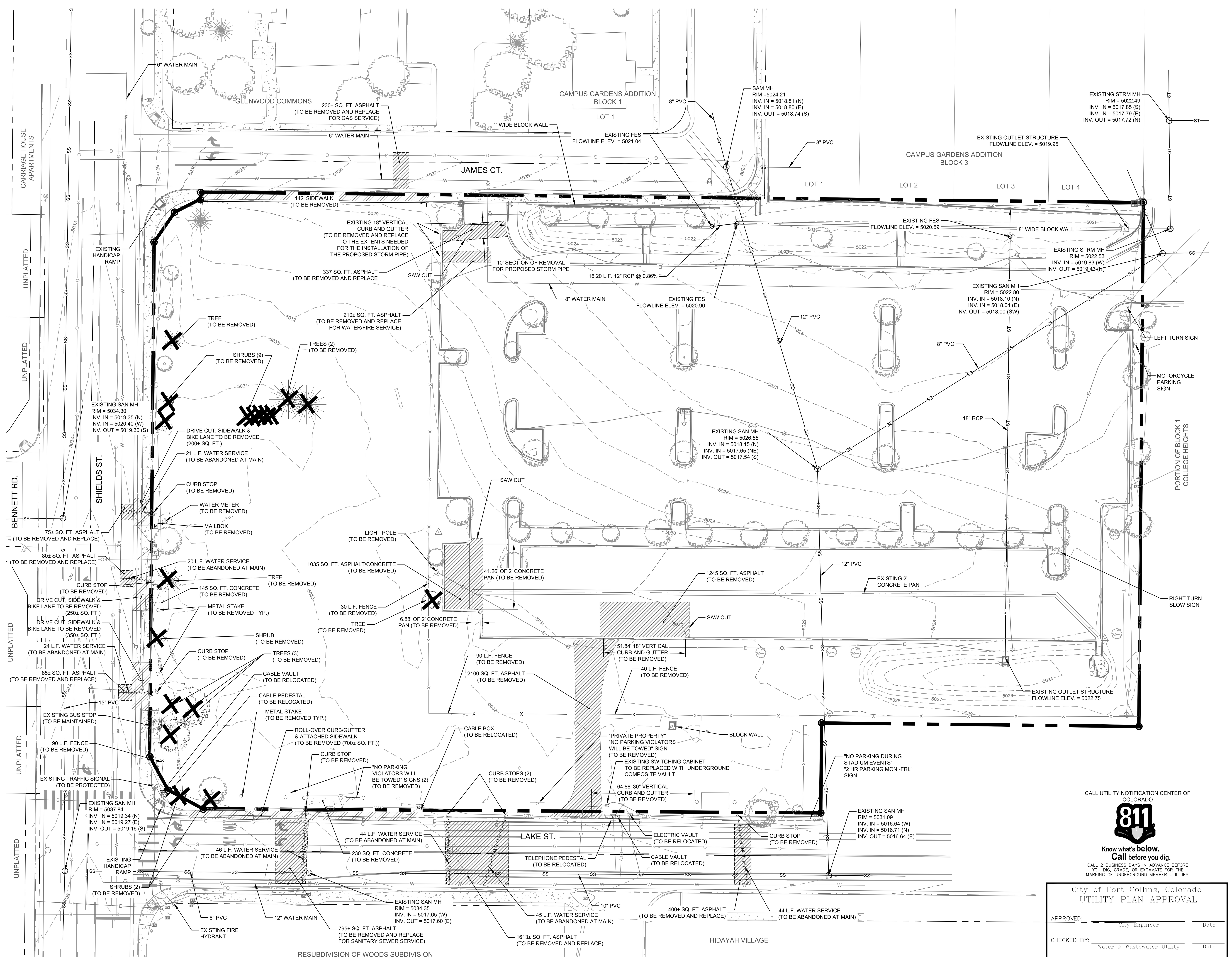

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CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
1 INCH = 30 FEET

LEGEND:

PROPERTY BOUNDARY
BURIED ELECTRIC
BURIED GAS
WATER LINE
SANITARY SEWER LINE
STORM LINE
OVERHEAD UTILITY
EXISTING CURB/GUTTER
MAJOR CONTOUR — 4950
MINOR CONTOUR — 4949
DEMO LINE
LIGHT POLE
FIRE HYDRANT
TRAFFIC VAULT
SANITARY MH
FOUND CORNER
GAS METER
DECID. TREE
DECID. TREE TO BE REMOVED
CONIF. TREE
CONIF. TREE TO BE REMOVED
POWER POLE
ELECTRIC VAULT
TELEPHONE PEDESTAL
H2O METER

BENCHMARK AND BASIS OF BEARING

PROJECT DATUM: NAVD 88

BENCHMARK #1: CITY OF FORT COLLINS BENCHMARK 1-13

SOUTHWEST CORNER OF COLLEGE AVE. AND MAPLE ST. ON A CONCRETE TRAFFIC SIGNAL BASE.

ELEVATION = 4929.75

BENCHMARK #2: CITY OF FORT COLLINS BENCHMARK 3-13

APPROX. 40 FT SOUTH OF THE LINDEN STREET BRIDGE OVER THE POUDRE RIVER ON TEH WEST OF OF LINDEN ST., ON A STORM INLET.

ELEVATION = 4962.27

PLEASE NOTE: THIS PLAN SET IS USING NAVD88 FOR A VERTICAL DATUM. SURROUNDING DEVELOPMENTS HAVE USED NGVD29 UNADJUSTED FOR THEIR VERTICAL DATUMS.

IF NGVD29 UNADJUSTED DATUM IS REQUIRE FOR ANY PURPOSE, THE FOLLOWING EQUATION SHOULD BE USED:
NGVD29 UNADJUSTED = NAVD88 - 3.17

BASIS OF BEARING:

THE BASIS OF BEARINGS IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 12 AS BEARING SOUTH 00°24'12" WEST.

NOTES:

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2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DEMOLITION, REMOVAL, REPLACEMENT, AND DISPOSAL OF ALL FACILITIES AND MATERIAL.
3. ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
4. CONTACT THE PROJECT SURVEYOR FOR ANY INQUIRIES RELATED TO THE EXISTING SITE SURVEY.
5. CONTRACTOR IS ENCOURAGED TO PERFORM DEMOLITION IN A MANNER THAT MAXIMIZES SALVAGE, RE-USE, AND RECYCLING OF MATERIALS. THIS INCLUDES APPROPRIATE SORTING AND STORING. IN PARTICULAR, DEMOLISHED CONCRETE, ASPHALT, AND BASE COURSE SHOULD BE RECYCLED IF POSSIBLE. THE CITY OF FORT COLLINS STREET DEPARTMENT OPERATES A CRUSHING OPERATION THAT WILL ACCEPT CONCRETE MATERIAL AT NO COST FOR CRUSHING AND RE-USE AS RECYCLED AGGREGATE. THIS OPERATION IS LOCATED AT 1380 HOFFMAN MILL ROAD AND CAN BE REACHED AT (970) 482-1249.
6. SEE LANDSCAPE PLANS FOR TREE MITIGATION MEASURES.
7. ALL EXISTING SANITARY SEWER SERVICES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. ALL SEWER SERVICES TO BE UNUSED SHALL BE ABANDONED AT THE MAIN AND COORDINATED WITH FORT COLLINS UTILITIES (970-221-6700).
8. LIMITS OF STREET CUT ARE APPROXIMATE. FINAL LIMITS ARE TO BE DETERMINED IN THE FIELD BY THE CITY ENGINEERING INSPECTOR. ALL REPAIRS TO BE IN ACCORDANCE WITH CITY STREET REPAIR STANDARDS.
9. DEMOLITION OF THE EXISTING BUILDING, PAVEMENTS, AND OTHER SITE FEATURES SHOULD INCLUDE COMPLETE REMOVAL OF ALL FOUNDATION SYSTEMS, BELOW-GRADE STRUCTURAL ELEMENTS, PAVEMENTS, AND EXTERIOR FLAT WORK WITHIN THE PROPOSED CONSTRUCTION AREA. THIS SHOULD INCLUDE REMOVAL OF ANY UTILITIES TO BE ABANDONED ALONG WITH ANY LOOSE UTILITY TRENCH BACKFILL OR LOOSE BACKFILL FOUND ADJACENT TO EXISTING FOUNDATIONS.
10. LIMITS OF CONCRETE CURB REMOVAL SHALL BE TO THE NEAREST JOINT. SECTIONS LESS THAN 5' SHALL BE COMPLETELY REPLACED.
11. CONTRACTOR SHALL PROTECT ALL EXISTING FEATURES THAT ARE NOT TO BE REMOVED ADJACENT TO THE CONSTRUCTION AREA INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, FENCES, AND UTILITIES.
12. CONTRACTOR TO COORDINATE REMOVAL AT EXISTING WATER SERVICES WITH CITY OF FORT COLLINS UTILITIES FIELD OPERATIONS AT (970)416.2165.
13. ALL UNUSED WATER AND SEWER SERVICES TO BE ABANDONED AT THE MAIN PER CITY OF FORT COLLINS STANDARDS. CONTRACTOR TO IDENTIFY ALL UNUSED SERVICES AND COORDINATE WITH THE CITY OF FORT COLLINS FOR SERVICE ABANDONMENT.

No. | Revisions: | By: | Date:

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

NORTHERN ENGINEERING

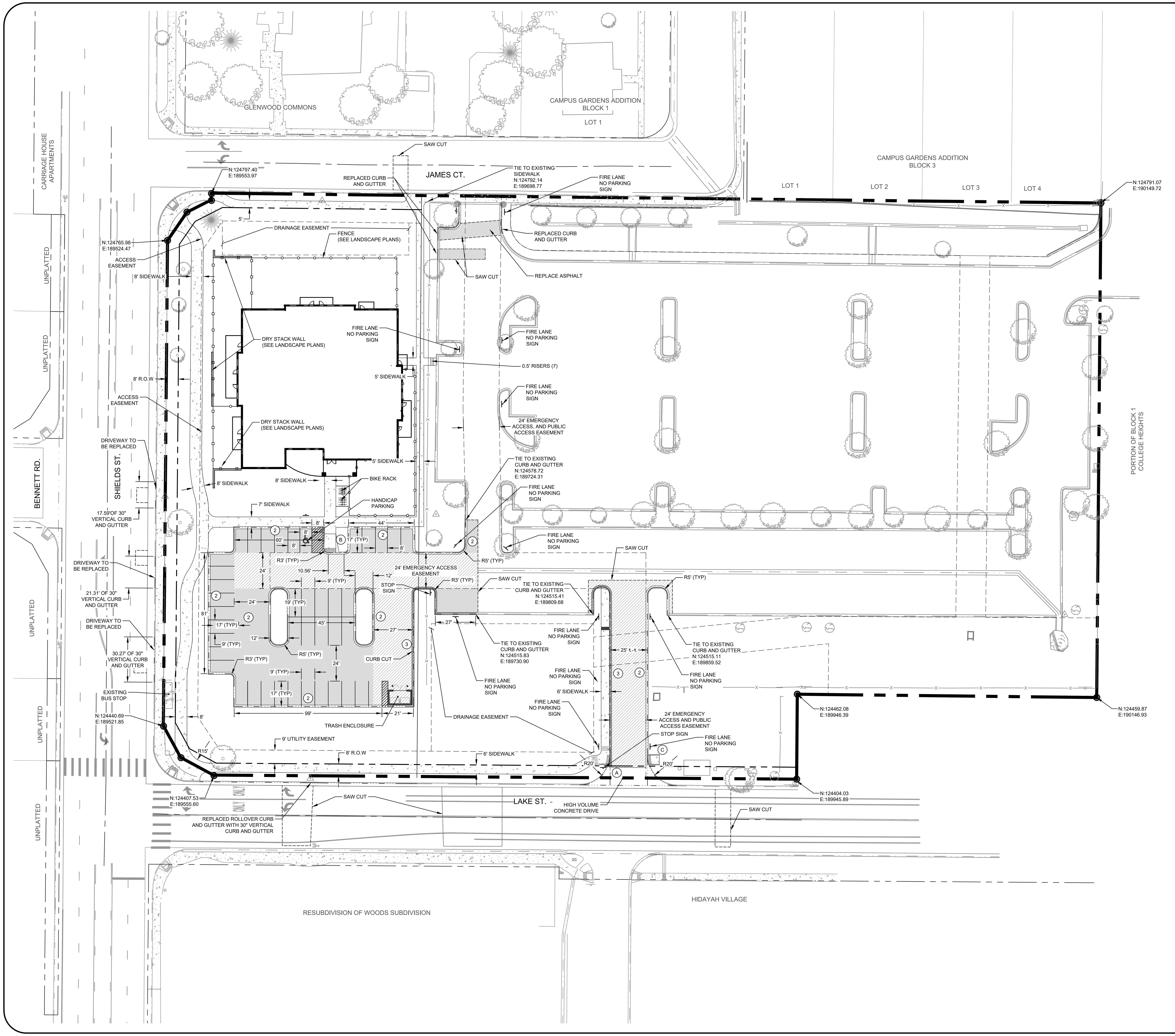
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

PROJECT: 232-047
DATE: 10/03/2018
DESIGNED BY: B. MATHISEN
SCALE: 1"=30'
DRAWN BY: B. MATHISEN
REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS

EXISTING CONDITIONS AND DEMOLITION PLAN

Sheet
C1.00



GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
1 INCH = 30 FEET

LEGEND:

- CURB AND GUTTER
- EXISTING CURB AND GUTTER
- INFLOW CURB AND GUTTER
- TRANSITION BETWEEN INFLOW AND OUTFALL (T)
- CORNER LOCATION ACCESS RAMP (A)
- DIRECTIONAL ACCESS RAMP (FLARE OPTION) (B)
- STANDARD ACCESS RAMP (C)
- 30" VERTICAL CURB AND GUTTER (1)
- 18" OUTFALL CURB AND GUTTER (2)
- 18" INFLOW CURB AND GUTTER (3)
- 18" ROLL OVER CURB AND GUTTER (4)
- TRANSITION CURB AND GUTTER (T)
- CONCRETE PAVING
- ASPHALT PAVING - LITE DUTY
- ASPHALT PAVING - HEAVY DUTY

NOTES:

1. CURVES AND LINES ARE MEASURED AT FLOWLINE OR EDGE OF WALK.
2. PAVEMENT MARKINGS SHALL BE PER CITY STANDARDS AND PROJECT SPECIFICATIONS MANUAL.
3. SEE DETAIL SHEETS FOR ADDITIONAL INFORMATION REGARDING CURBS AND PAVEMENT SECTIONS.
4. SEE GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION AND PAVEMENT RECOMMENDATIONS.
5. REFER TO SITE AND LANDSCAPE PLANS FOR DECORATIVE PAVING, SCORING, ETC.
6. PRIVATE CONCRETE DRIVE AISLES/PARKING STALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 330R-08.
7. BUILDING POINTS ARE AT CORNERS OF NOMINAL BUILDING FOOTPRINT. CONTRACTOR SHALL CONFIRM ALL BUILDING CORNERS AND STRUCTURAL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO STAKING.

CALL UTILITY NOTIFICATION CENTER OF COLORADO

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City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

No. Revisions: By: Date:

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DATE: 10/03/2018
SCALE: 1"=30'
REVIEWED BY: C. SNOWDON
PROJECT: 232-047
DESIGNED BY: B. MATHISEN
DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS

HORIZONTAL CONTROL PLAN

Sheet C2.00
04 of 15

DRAWING FILENAME: O:\Projects\232-047\Dwg\Cfs\232-047_HOR.dwg LAYOUT NAME: C-200 DATE: Oct 03, 2018 - 5:17pm CAD OPERATOR: bdahe
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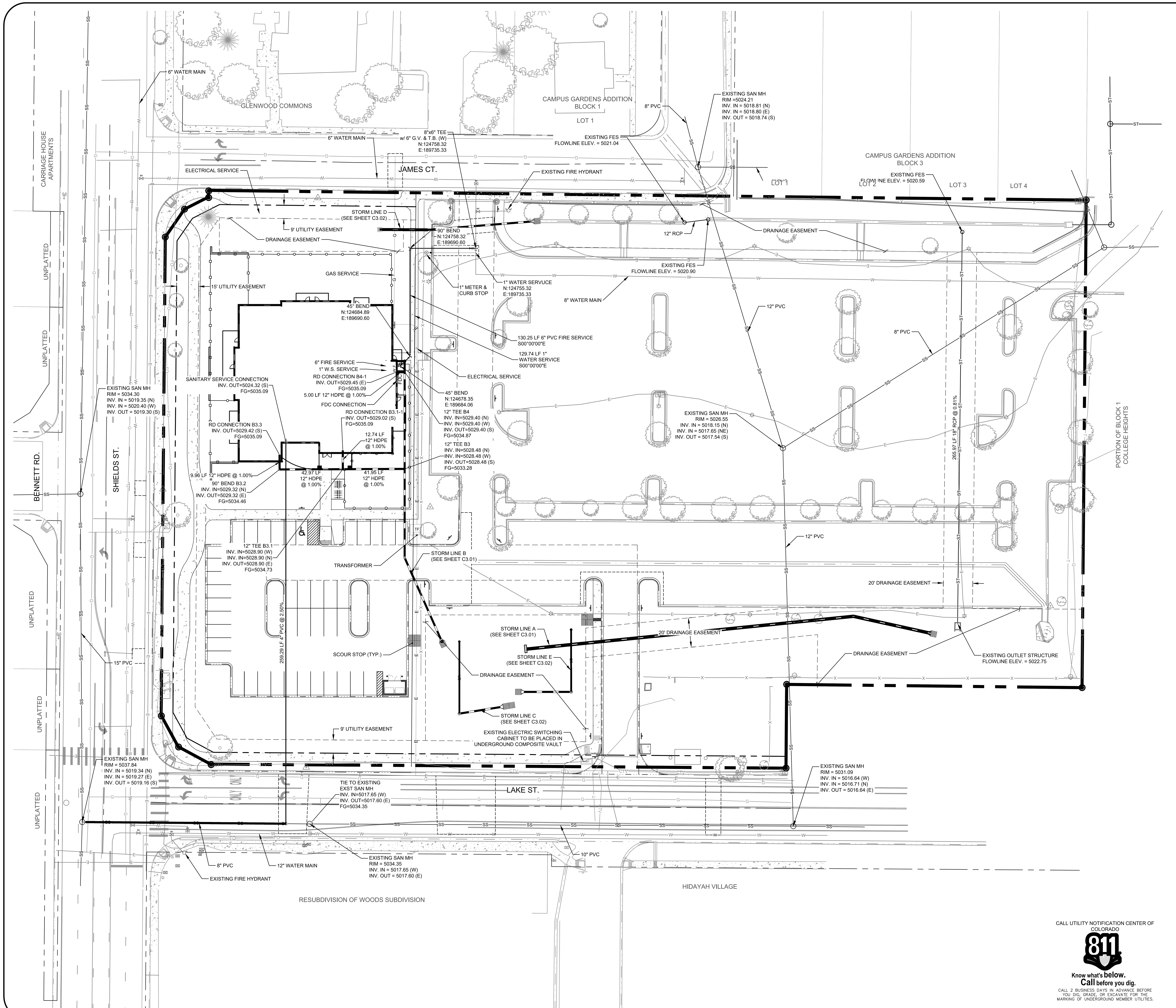

GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
1 INCH = 30 FEET

LEGEND:

PROJECT BOUNDARY	
PROPOSED CURB & GUTTER	
PROPOSED EASEMENT LINE	
EXISTING EXISTING R.O.W	
EXISTING BURIED ELECTRIC	E
EXISTING BURIED GAS	G
EXISTING WATER LINE	W
PROPOSED WATER SERVICE LINE	W
EXISTING SANITARY SEWER LINE	SS
PROPOSED SANITARY SERVICE LINE	S
PROPOSED FIRE SERVICE LINE	F
PROPOSED PERFORATED STROM	UD
PROPOSED STORM SEWER	
EXISTING STORM SEWER	ST
PROPOSED GAS LINE	G
PROPOSED ELECTRIC LINE	E
EXISTING SANITARY MH	
EXISTING GAS METER	
EXISTING ELECTRIC METER	
EXISTING ELECTRIC VAULT	
EXISTING TELEPHONE PEDESTAL	T
EXISTING FIRE HYDRANT	
EXISTING TRAFFIC VAULT	
PROPOSED FIRE DEPARTMENT CONNECTION	FDC
PROPOSED GAS METER	
PROPOSED ELECTRIC METER	
PROPOSED INLET	
WATER METER	W
ELECTRIC TRANSFORMER	TF

GENERAL NOTES:

1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. BEFORE COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL UNKNOWN UNDERGROUND UTILITIES.
2. ALL WATER AND SANITARY SEWER CONSTRUCTION SHALL BE PER THE CITY OF FORT COLLINS CONSTRUCTION STANDARDS, LATEST EDITION.
3. UTILITY SERVICES ARE SHOWN IN A SCHEMATIC FASHION ONLY. EXACT LOCATIONS SHALL BE PER THE REQUIREMENTS OF THE RESPECTIVE UTILITY PROVIDERS, AND ARE SUBJECT TO CHANGE IN THE FIELD.
4. ALL WATER FITTINGS, VALVES, AND OTHER UTILITY APPURTENANCES ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
5. ALL EXISTING SANITARY SEWER SERVICES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. ALL SEWER SERVICES TO BE UNUSED SHALL BE ABANDONED AT THE MAIN AND COORDINATED WITH FORT COLLINS UTILITIES (970-221-6700).
6. ALL EXISTING WATER SERVICES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. ALL SEWER SERVICES TO THE UNUSED SHALL BE ABANDONED AT THE MAIN AND COORDINATED WITH FORT COLLINS UTILITIES (970-221-6700)
7. PRIOR TO ORDERING MATERIAL AND MOBILIZING, CONTRACTOR SHALL FIELD LOCATE AND VERIFY ELEVATIONS OF ALL CONCRETE AND ASPHALT TIE-INS, EXISTING SEWER MAINS, WATER MAINS, AND ALL OTHER UTILITIES AT THE POINTS OF CONNECTION SHOWN ON THE PLANS. SPECIAL ATTENTION SHALL BE PAID TO ALL PROPOSED UTILITY CROSSINGS. IT IS RECOMMENDED THAT THE CONTRACTOR POTHOLE SAID CROSSINGS PRIOR TO ORDERING MATERIAL. REFER TO GENERAL NOTE #9 ON SHEET C-001 IF A CONFLICT ARISES AND/OR A DESIGN MODIFICATION IS DESIRED.
8. LIMITS OF STREET CUT ARE APPROXIMATE. FINAL LIMITS ARE TO BE DETERMINED IN THE FIELD BY THE CITY ENGINEERING INSPECTOR. ALL REPAIRS TO BE IN ACCORDANCE WITH CITY STREET REPAIR STANDARDS.
9. CONTRACTOR IS RESPONSIBLE FOR ALL THE REPAIRS AND REPLACEMENTS OF ANY DAMAGED CURB AND GUTTER. ALL REPAIRS TO BE IN ACCORDANCE WITH CITY STREET REPAIR STANDARDS.
10. ALL PROPOSED FLARED END SECTIONS HAVE SCOUR STOP. SEE SHEET C5.01 FOR SIZING AND DETAIL.

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Revisions: No. By: Date:

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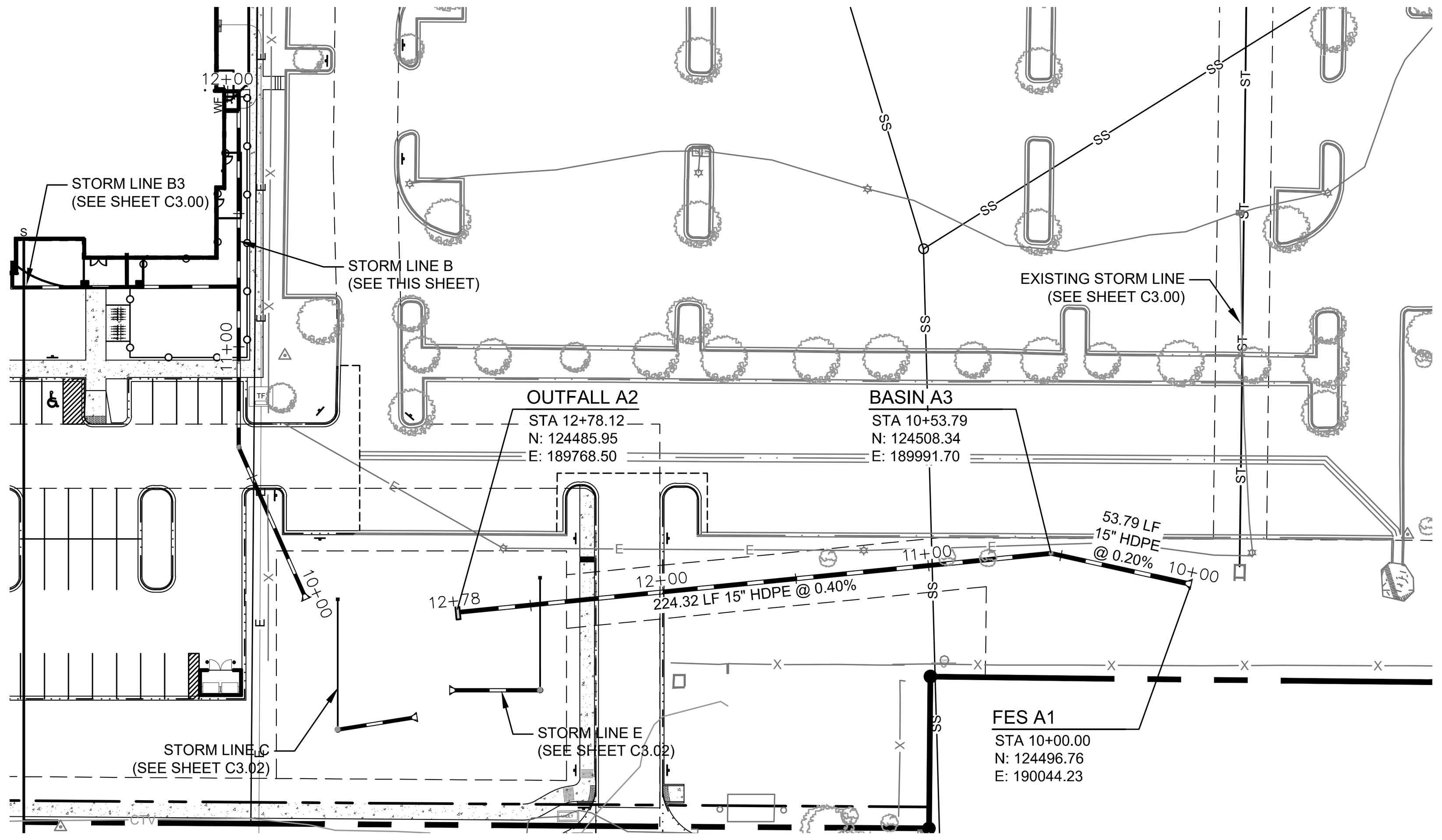
DATE: 10/03/2018 | SCALE: 1"=30' | REVIEWED BY: C. SNOWDON
PROJECT: 232-047 | DESIGNED BY: B. MATHISEN | DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS
UTILITY PLAN

Sheet C3.00



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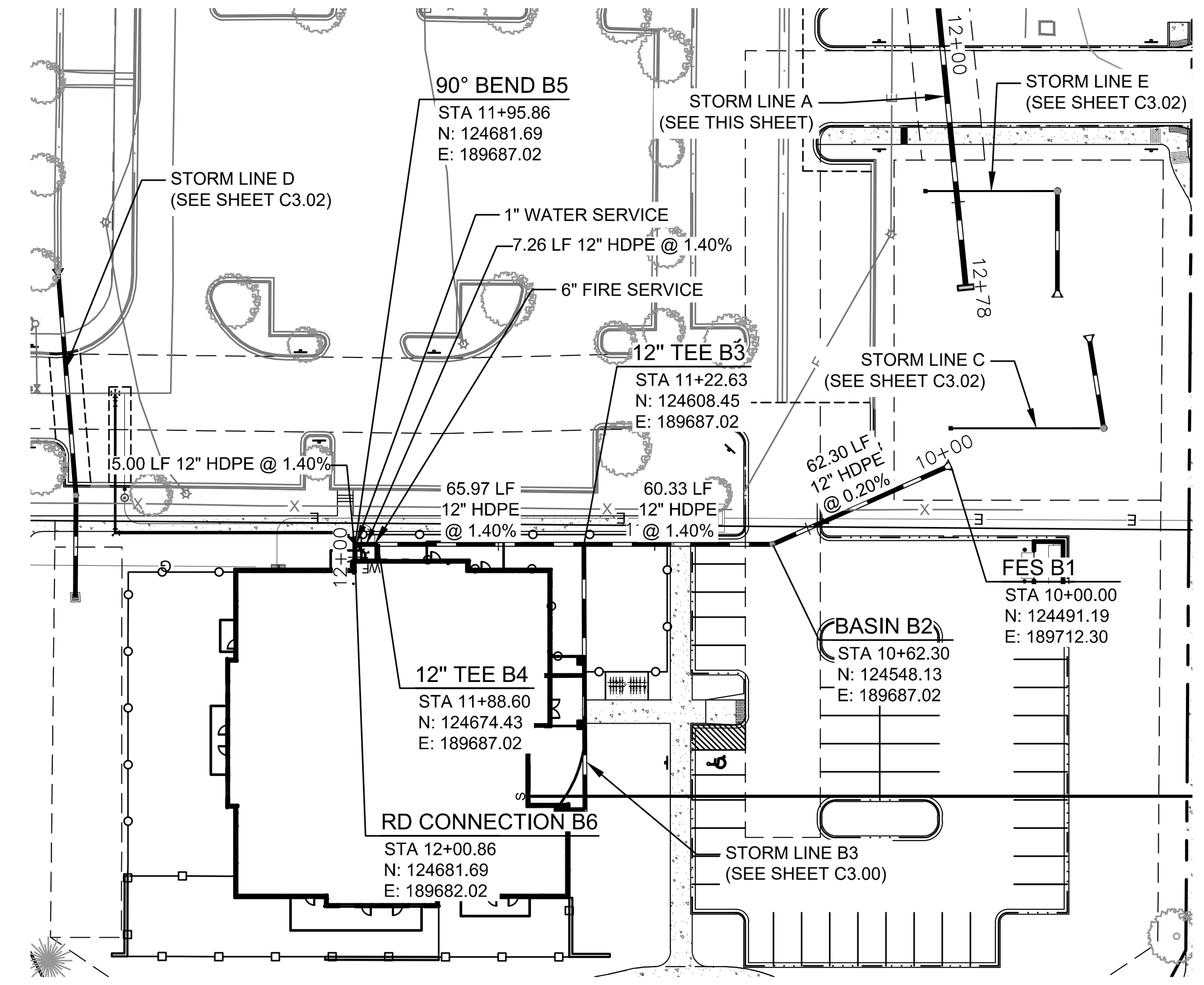
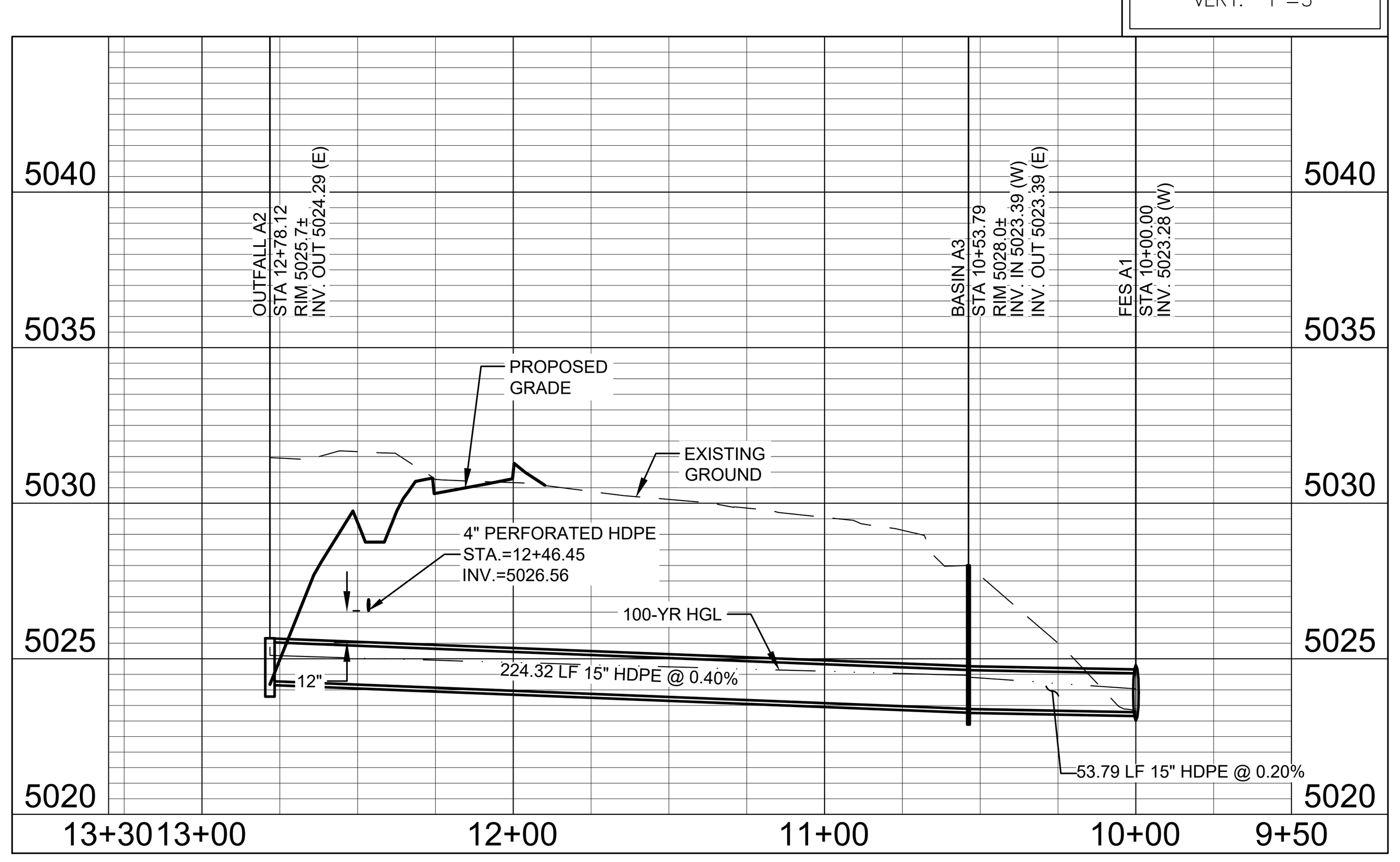


NORTH

STORM LINE A

"PRIVATE STORM LINE"

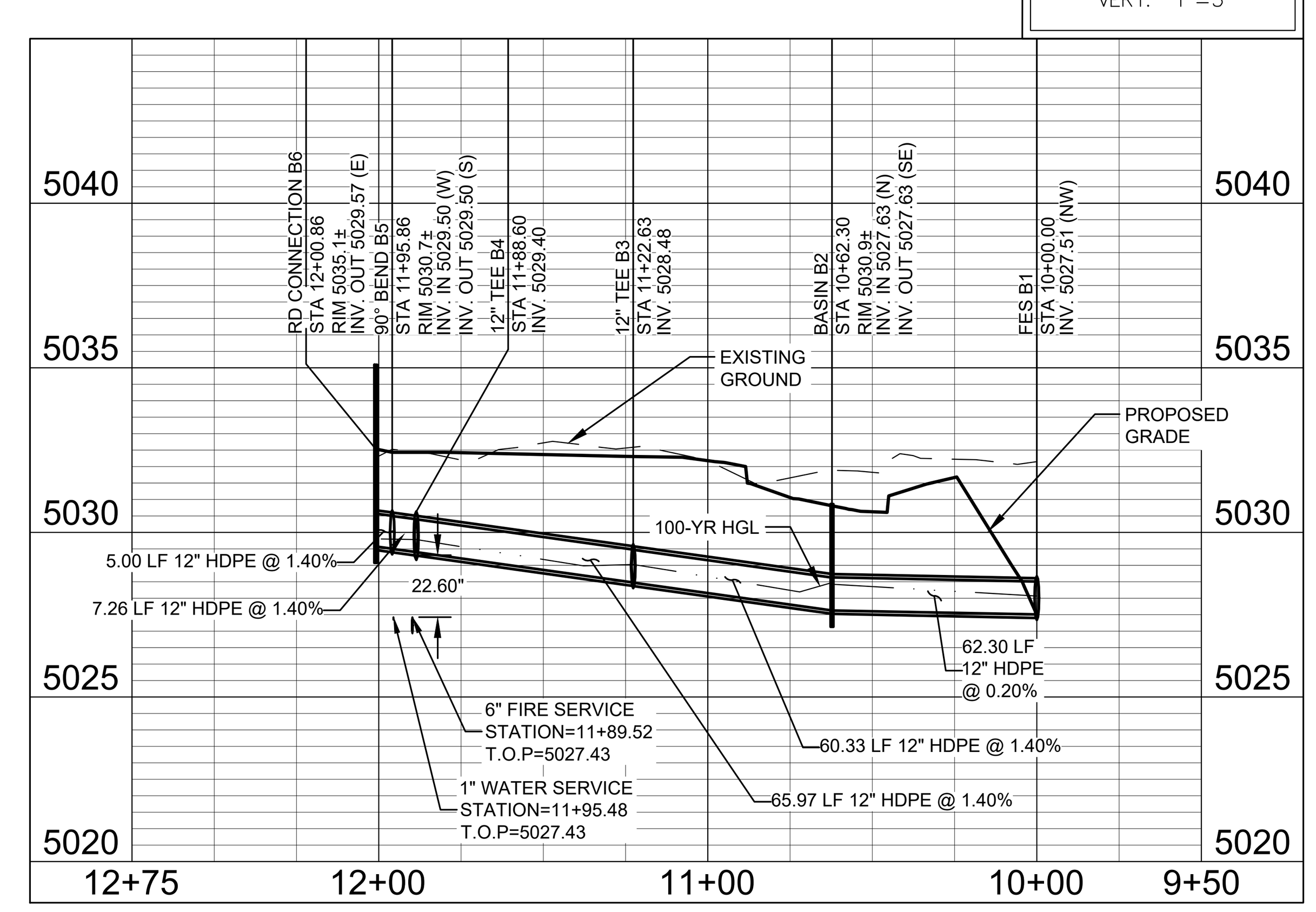
PROFILE SCALE:
HORIZ. 1"=50'
VERT. 1"=5'



STORM LINE B

"PRIVATE STORM LINE"

PROFILE SCALE:
HORIZ. 1"=50'
VERT. 1"=5'



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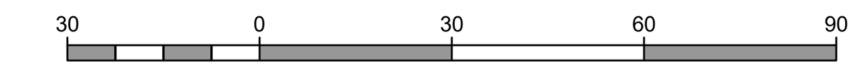

(IN FEET)
1 INCH = 30 FEET

LEGEND:

- PROJECT BOUNDARY
- PROPOSED CURB & GUTTER
- PROPOSED EASEMENT LINE
- EXISTING EXISTING R.O.W
- EXISTING BURIED ELECTRIC
- EXISTING BURIED GAS
- EXISTING WATER LINE
- PROPOSED WATER SERVICE LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED SANITARY SERVICE LINE
- PROPOSED FIRE SERVICE LINE
- PROPOSED PERFORATED STROM
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED GAS LINE
- PROPOSED ELECTRIC LINE
- EXISTING SANITARY MH
- EXISTING GAS METER
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC VAULT
- EXISTING TELEPHONE PEDESTAL
- EXISTING FIRE HYDRANT
- EXISTING TRAFFIC VAULT
- PROPOSED FIRE DEPARTMENT CONNECTION — FDC
- PROPOSED GAS METER
- PROPOSED ELECTRIC METER
- PROPOSED INLET
- WATER METER
- ELECTRIC TRANSFORMER

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4. ALL WATER FITTINGS, VALVES, AND OTHER UTILITY APPURTENANCES ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
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APPROVED:	City Engineer	Date
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REVIEW SET
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No. Revisions: By: Date:

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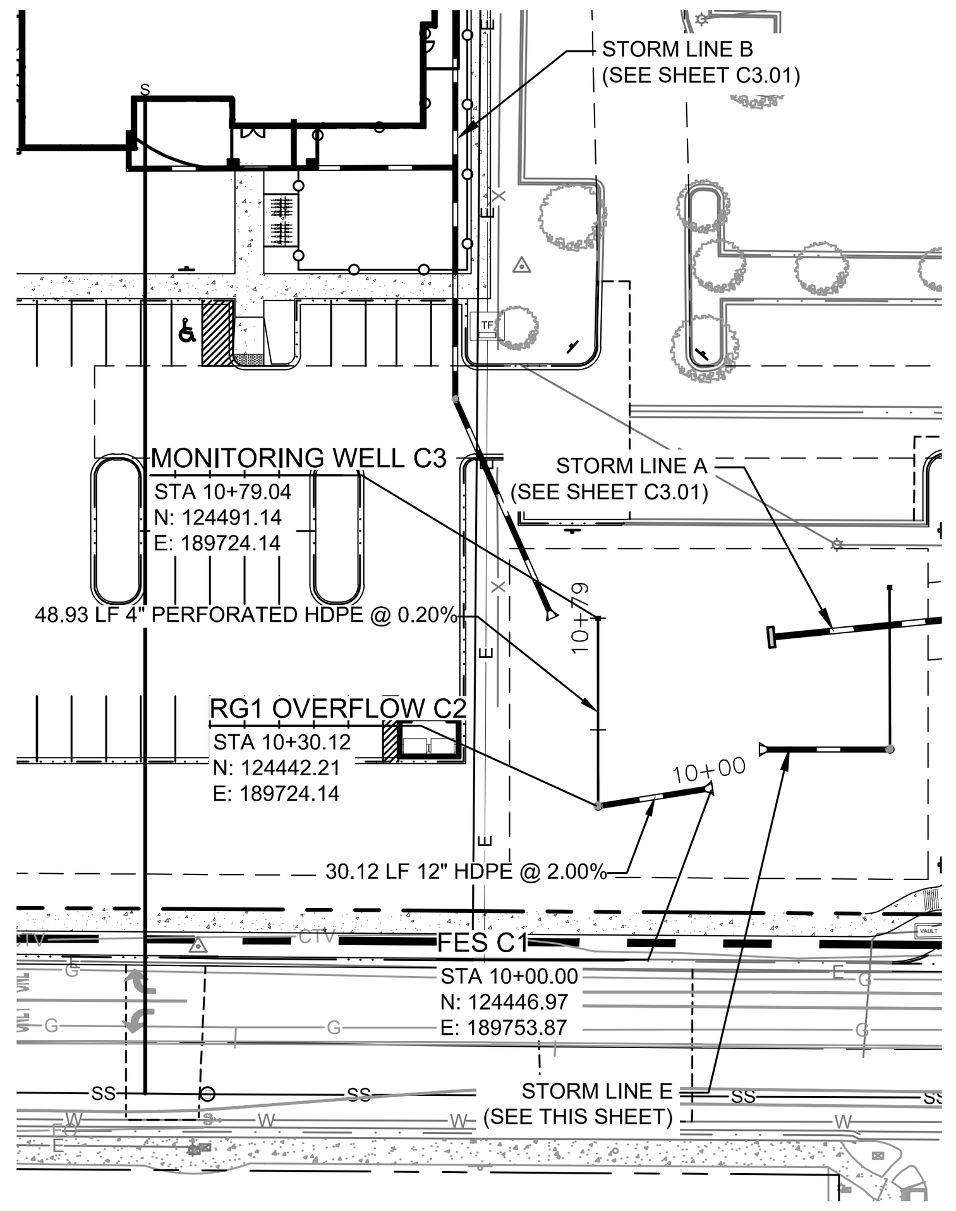
northernengineering.com

PROJECT: 232-047
DATE: 10/03/2018
DESIGNED BY: B. MATHISEN
SCALE: 1"=30'
DRAWN BY: B. MATHISEN
REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS
STORM LINES A & B PLAN AND PROFILE

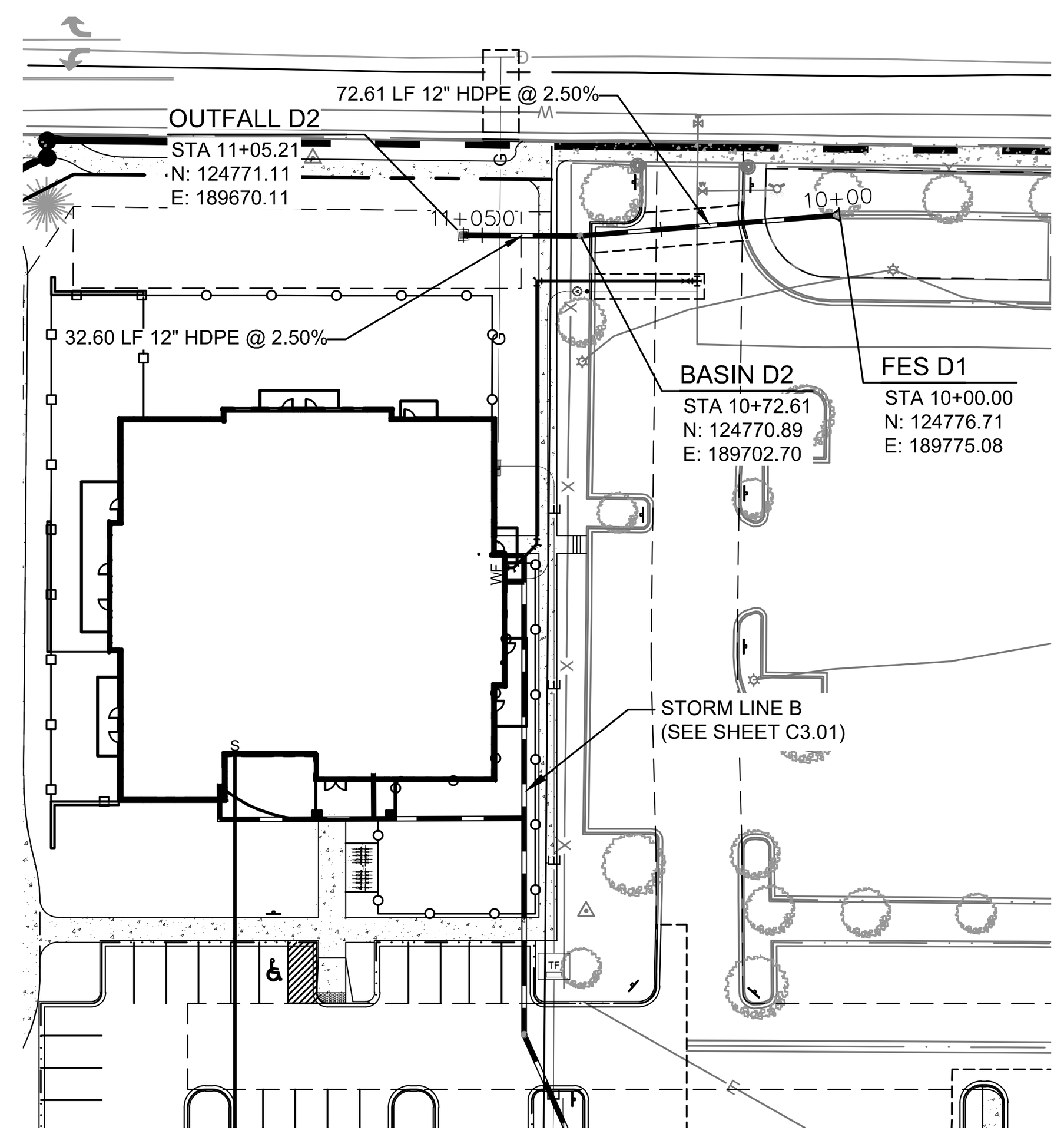
Sheet C3.01



NORTH

STORM LINE C

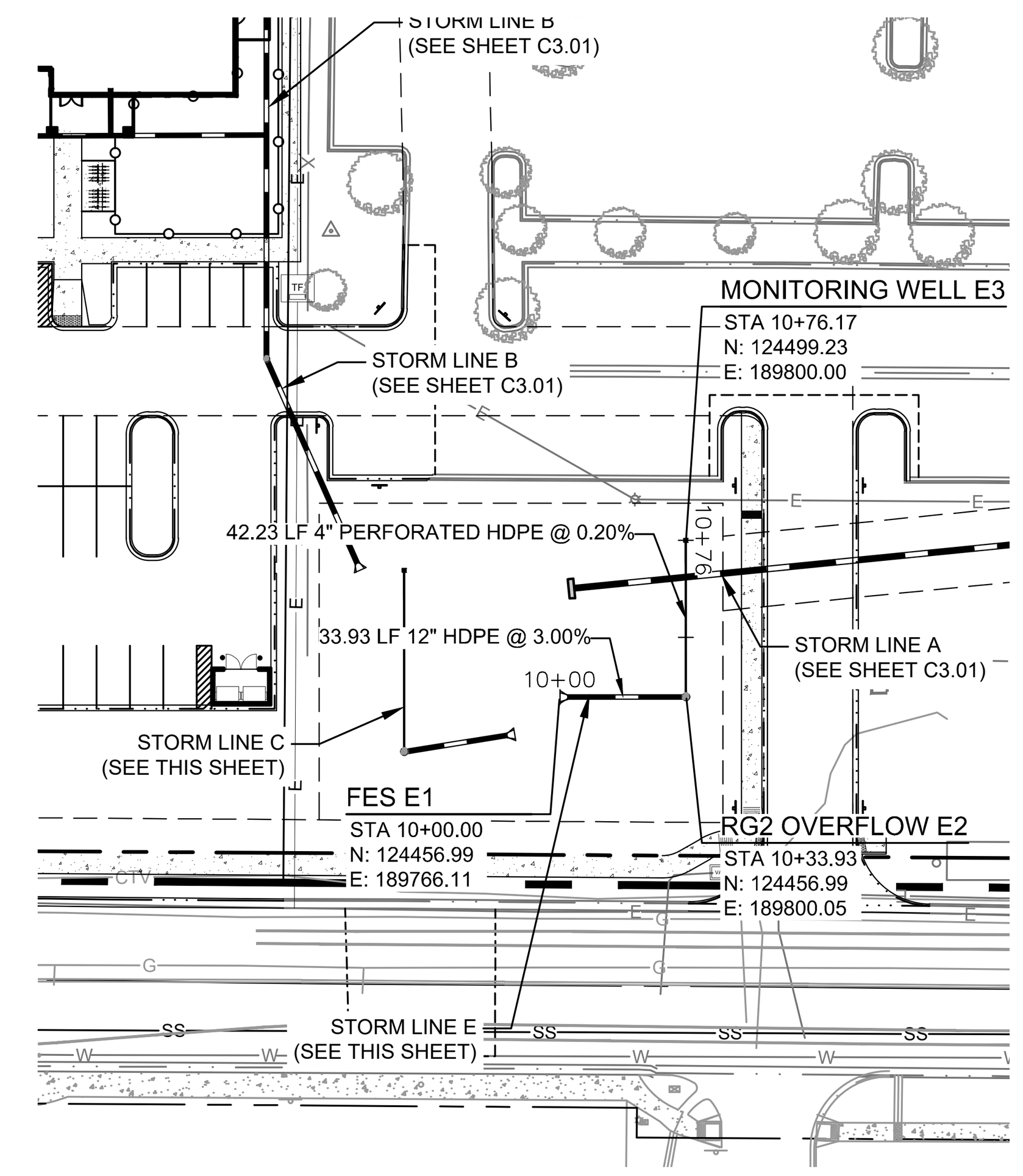
"PRIVATE STORM LINE"



NORTH

STORM LINE D

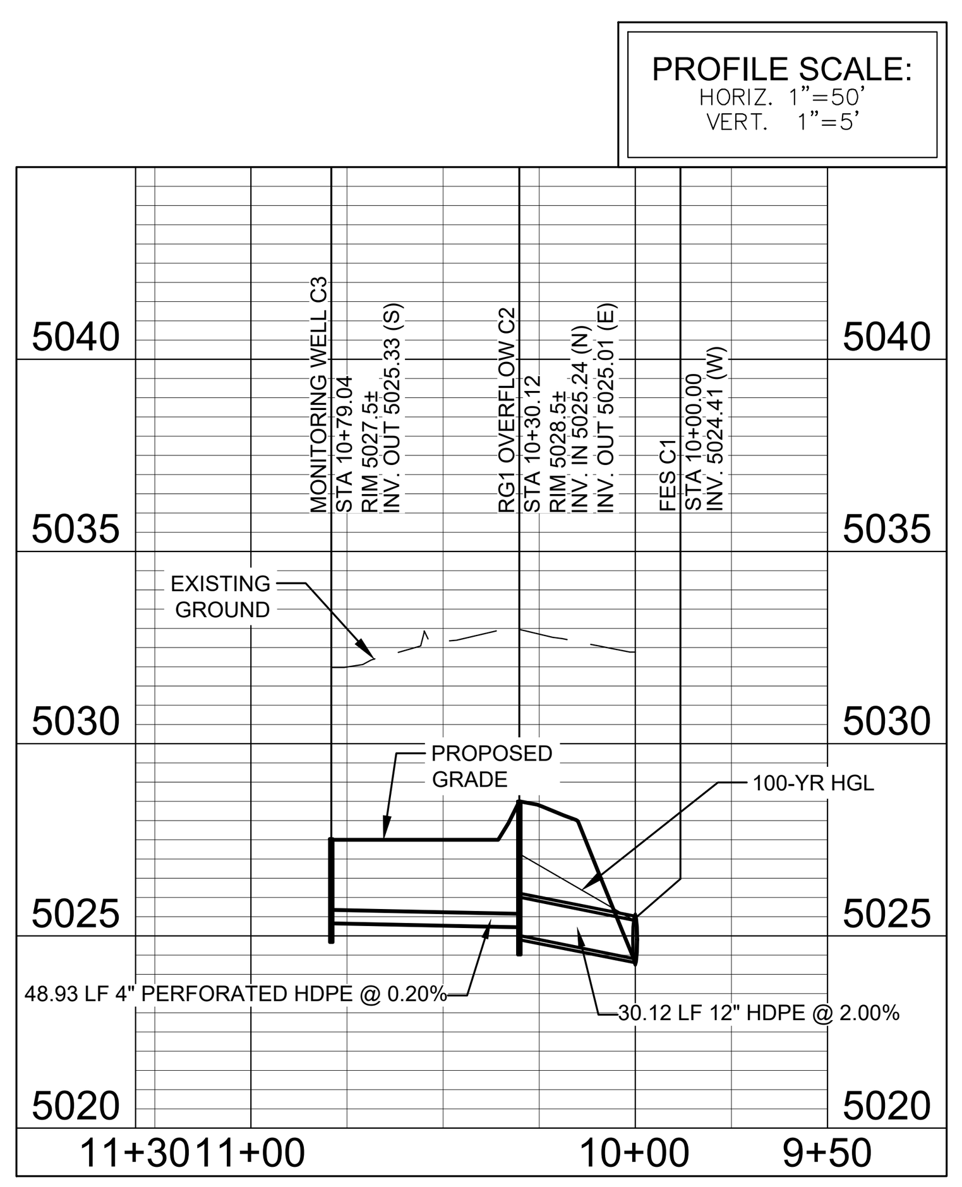
"PRIVATE STORM LINE"

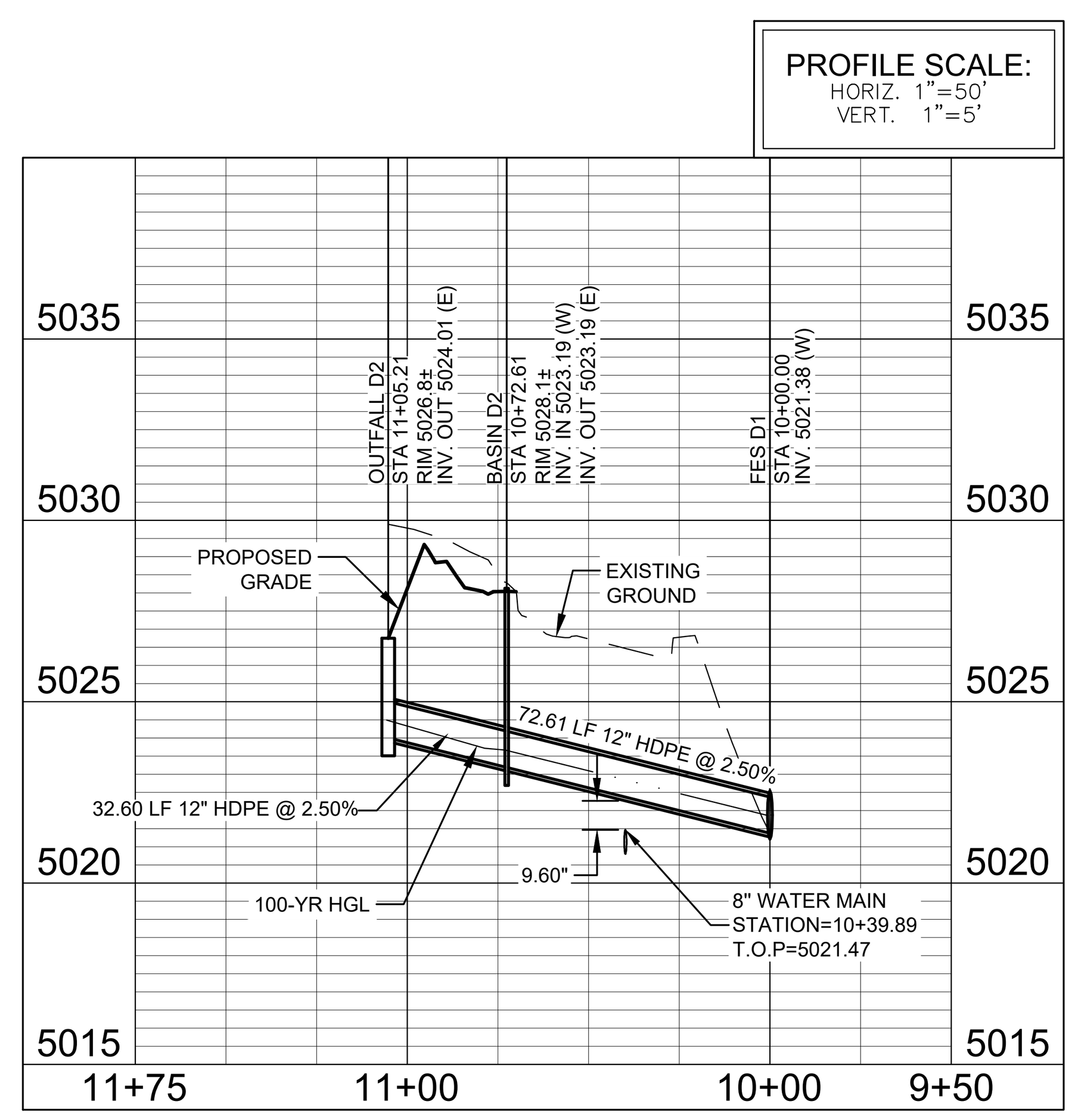


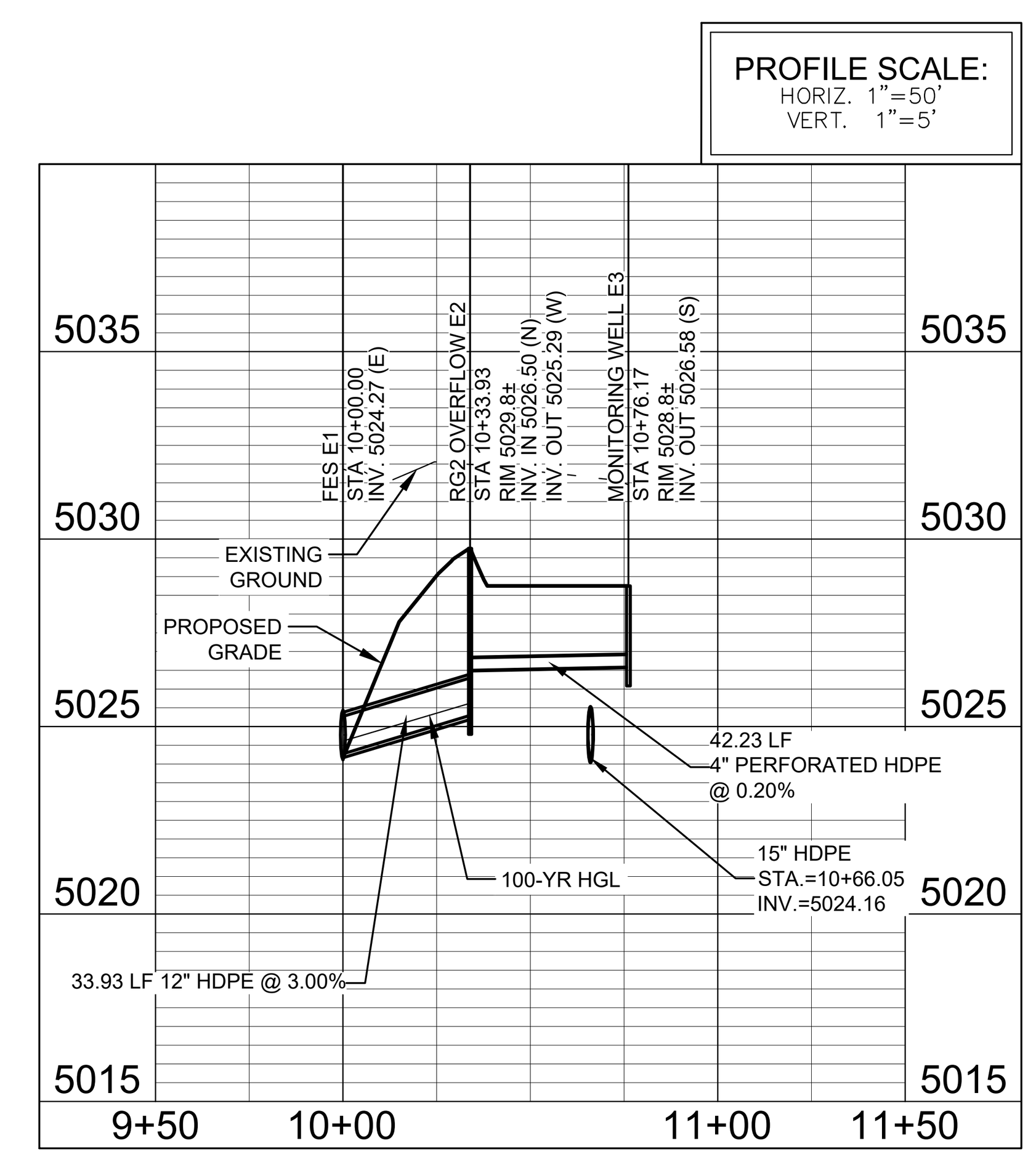
NORTH

STORM LINE E

"PRIVATE STORM LINE"







GRAPHIC SCALE:

(IN FEET)
1 INCH = 30 FEET

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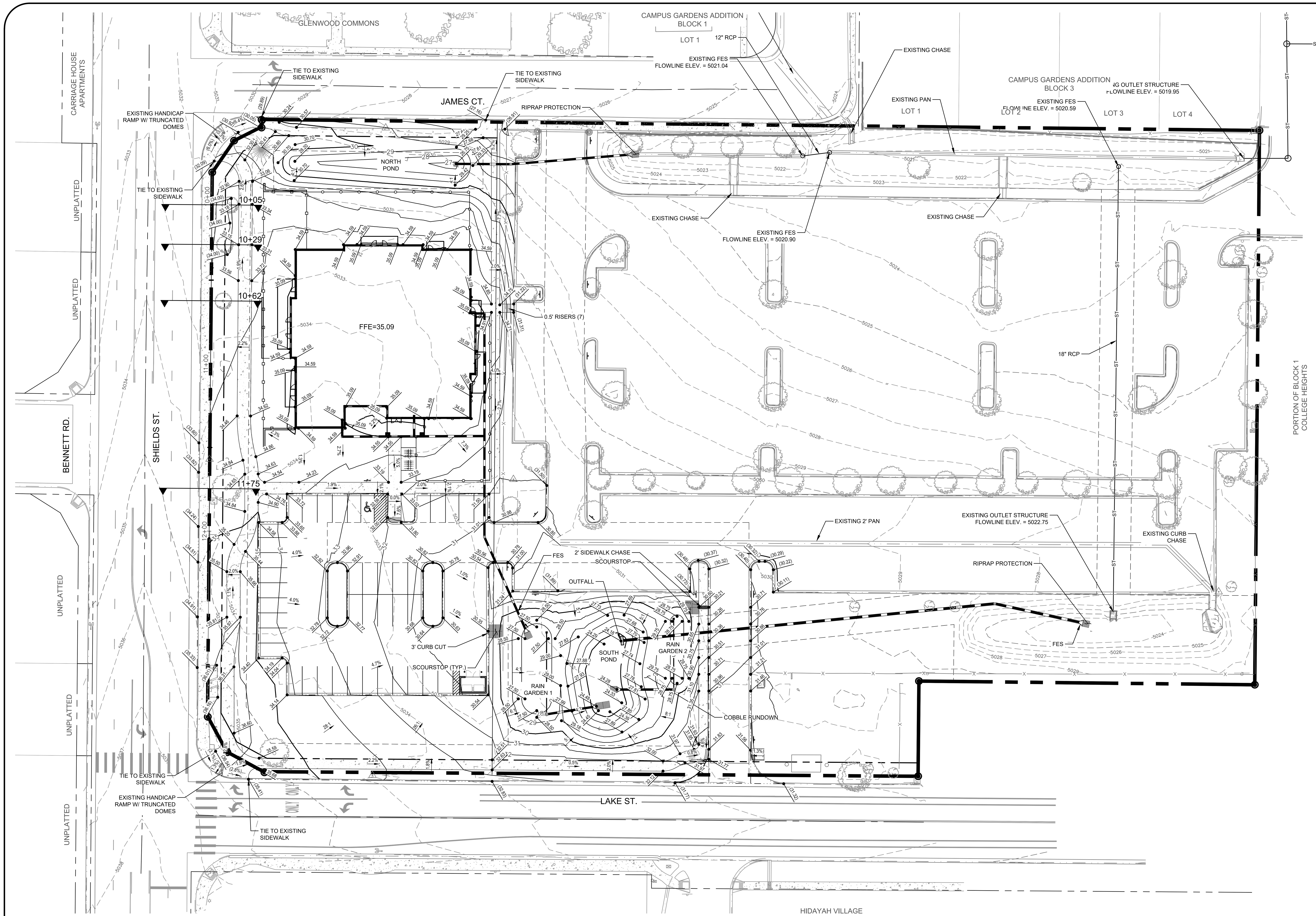
DATE: 10/03/2018	PROJECT: 232-047
SCALE: 1"=30'	DESIGNED BY: B. MATHISEN
REVIEWED BY: C. SNOWDON	DRAWN BY: B. MATHISEN

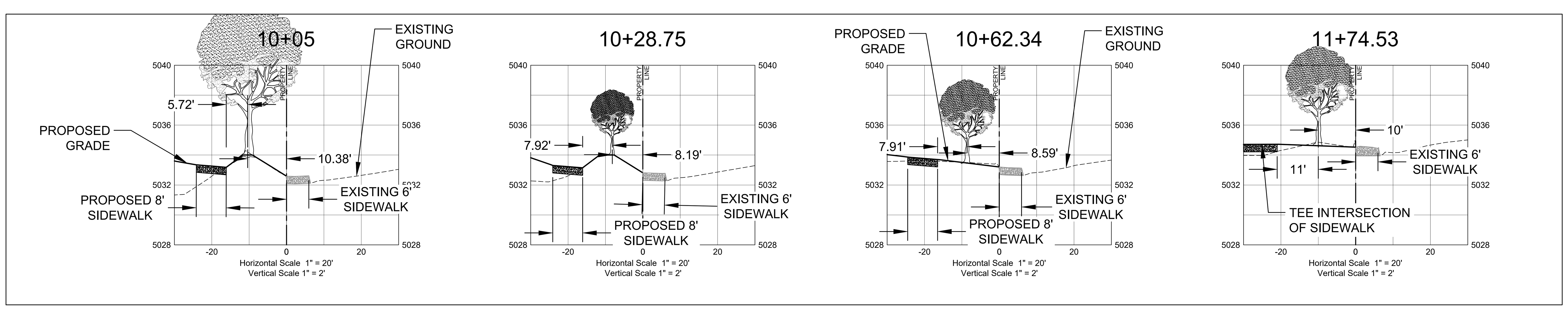
NEC LAKE & SHIELDS

STORM LINES C, D, & E PLAN AND PROFILE

Sheet C3.02



TREE CROSS SECTIONS



GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
1 INCH = 30 FEET

LEGEND:

- PROJECT BOUNDARY
- EXISTING STORM SEWER LINE
- EXISTING EDGE OF ASPHALT
- EXISTING CURB/GUTTER FLOWLINE
- PROPOSED STORM DRAIN WITH INLET
- PROPOSED SWALE FLOWLINE
- PROPOSED INFLOW CURB/GUTTER FLOWLINE
- PROPOSED OUTFALL CURB/GUTTER FLOWLINE
- FUTURE CURB/GUTTER FLOWLINE
- PROPOSED CONTOUR — 4950
- EXISTING CONTOUR — 4950
- BANK SLOPE — 4:1
- PROPOSED ASPHALT CROSS SLOPE — 2.0%
- CONCENTRATED FLOW DIRECTION
- PROPOSED FINISH GROUND ELEVATION — 79.45
- EXISTING GROUND ELEVATION — (79.45)
- EXISTING DECID. TREE
- EXISTING CONIF. TREE
- EXISTING LIGHT POLE

BENCHMARK/BASIS OF BEARING

PROJECT DATUM: NAVD 88

BENCHMARK #1: CITY OF FORT COLLINS BENCHMARK 1-13

SOUTHWEST CORNER OF COLLEGE AVE. AND MAPLE ST. ON A CONCRETE TRAFFIC SIGNAL BASE.

ELEVATION = 4929.75

BENCHMARK #2: CITY OF FORT COLLINS BENCHMARK 3-13

APPROXIMATELY 40 FT SOUTH OF THE LINDEN STREET BRIDGE OVER THE POUDRE RIVER ON TEH WEST OF OF LINDEN ST., ON A STORM INLET.

ELEVATION = 4962.27

PLEASE NOTE: THIS PLAN SET IS USING NAVD88 FOR A VERTICAL DATUM. SURROUNDING DEVELOPMENTS HAVE USED NGVD29 UNADJUSTED FOR THEIR VERTICAL DATUMS.

IF NGVD29 UNADJUSTED DATUM IS REQUIRE FOR ANY PURPOSE, THE FOLLOWING EQUATION SHOULD BE USED:
NGVD29 UNADJUSTED = NAVD88 - 3.17

BASIS OF BEARING:

THE BASIS OF BEARINGS IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 12 AS BEARING SOUTH 00°24'12" WEST.

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2. THE TOP OF FOUNDATION ELEVATIONS SHOWN ARE THE MINIMUM ELEVATIONS REQUIRED FOR PROTECTION FROM THE 100-YEAR STORM.
3. EROSION CONTROL PRACTICES, SITE PROTECTION, AND REVEGETATION METHODS SHALL FOLLOW CITY REGULATIONS.
4. REFER TO SITE PLAN, LANDSCAPE PLAN, AND PLAT FOR ADDITIONAL INFORMATION.
5. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND VERIFYING ELEVATIONS OF ALL EXISTING SEWER MAINS, WATER MAINS, CURBS, GUTTERS AND OTHER UTILITIES AT THE POINTS OF CONNECTION SHOWN ON THE PLANS, AND AT ANY UTILITY CROSSINGS PRIOR TO INSTALLING ANY OF THE NEW IMPROVEMENTS. IF A CONFLICT EXISTS AND/OR A DESIGN MODIFICATION IS REQUIRED, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN.
6. SEE SHEET C2.00 FOR HORIZONTAL INFORMATION INCLUDING CURB AND GUTTER TYPES, PAN WIDTHS, DRIVE AISLE DIMENSIONS, EASEMENTS, ETC.

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SCALE: 1"=30'
REVIEWED BY: C. SNOWDON
PROJECT: 232-047
DESIGNED BY: B. MATHISEN
DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS
GRADING PLAN

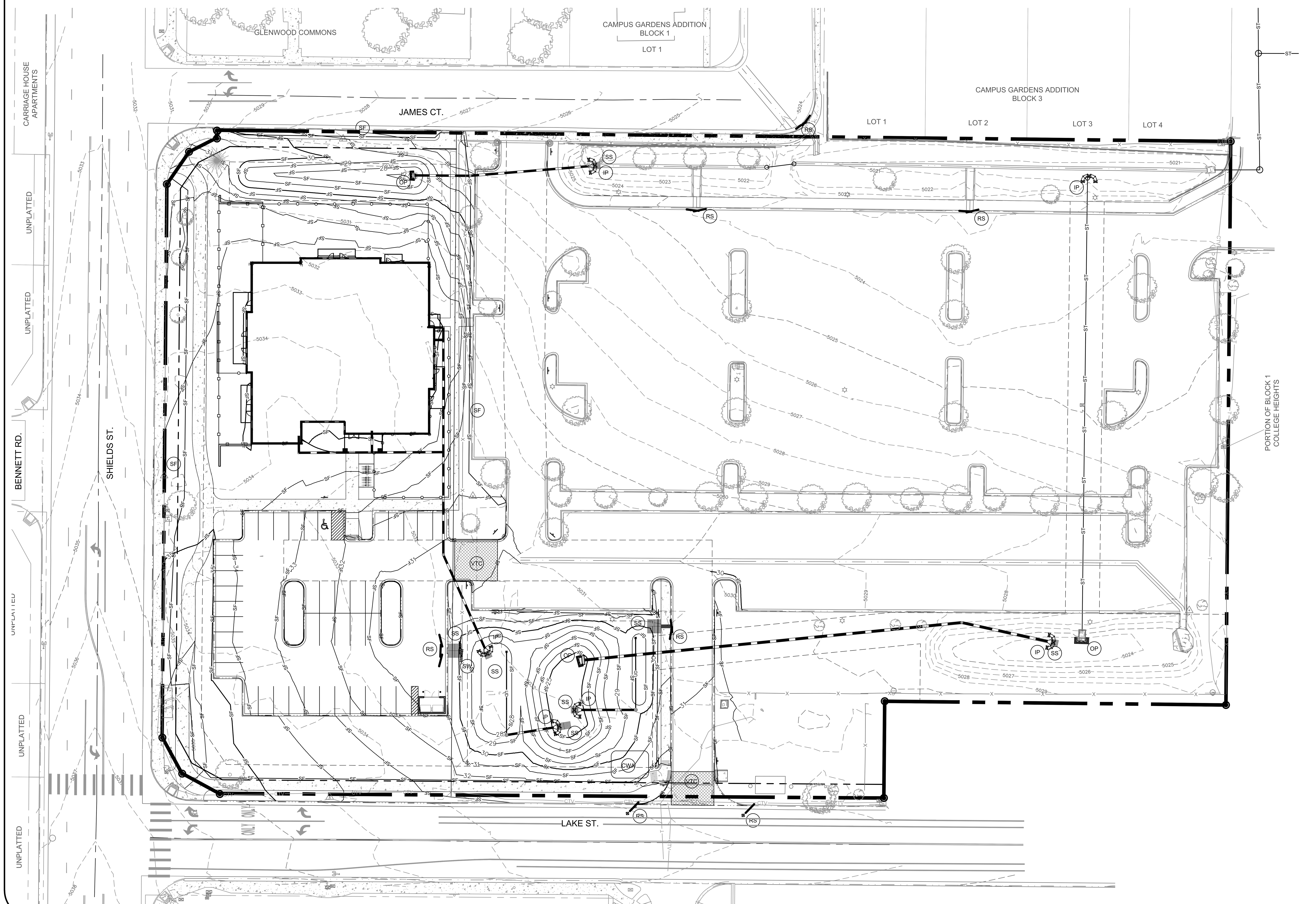
TABLE OF CONSTRUCTION SEQUENCE AND BMP APPLICATION

Project: STANDARD AT FORT COLLINS

CONSTRUCTION PHASE	MOBILIZATION	DEMOLITION	GRADING	UTILITIES INSTALLATION	FLAT WORK INSTALLATION	VERTICAL INSTALLATION	LANDSCAPE	DEMOBILIZATION
BEST MANAGEMENT PRACTICES (BMPS)								
STRUCTURAL "INSTALLATION"								
Silt Fence Barriers *	■	■	■	■	■	■		
Contour Furrows (Ripping / Disking)		■	■	■				
Vehicle Tracking Pad *	■	■	■	■				
Flow Barriers (Wattles) *			■	■	■	■	■	
Inlet Filter Bags *	Any prior inlets that could use protecting			■	■	■	■	
Rock Bags *	Any prior inlets that could use protecting			■	■	■	■	
Riprap				■	■	■	■	■
* All Temporary BMPs to be Removed once Construction is Complete								
Vegetative								
Temporary Seeding Planting		Anytime the site will sit dormant longer than 30 Days						
Mulching / Sealant		Anytime the site will sit dormant longer than 30 Days					■	■
Permanent Seeding Planting							■	■
Sod Installation							■	■
Rolled Products : Netting / Blankets / Mats		Anytime the site will sit dormant longer than 30 Days					■	■

EROSION CONTROL NOTES:

1. IT SHOULD BE NOTED THAT ANY EROSION CONTROL PLAN SERVES ONLY AS A GUIDELINE TO THE CONTRACTOR. STAGING AND/OR PHASING OF BEST MANAGEMENT PRACTICES (BMPs) IS EXPECTED. ADDITIONAL AND/OR DIFFERENT BMPs FROM THOSE ORIGINALLY DEPICTED MAY BE NECESSARY DURING CONSTRUCTION DUE TO CHANGING SITE CONDITIONS OR AS REQUIRED BY LOCAL AUTHORITIES.
2. THIS EROSION CONTROL PLAN IS SCHEMATIC IN NATURE. AS SUCH, GRAPHICAL SYMBOLS MAY NOT BE TO SCALE, NOR ARE THEY NECESSARILY SHOWN IN THEIR EXACT LOCATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITTING (CITY, STATE DISCHARGE PERMIT, ETC.) AND COMPLIANCE WITH GOVERNING AUTHORITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR (OR PERMIT HOLDER) TO ENSURE EROSION CONTROL MEASURES ARE PROPERLY MAINTAINED AND FOLLOWED.
4. CONTRACTOR SHALL IMPLEMENT THE APPROPRIATE EROSION CONTROL MEASURES ACCORDING THE THE CONSTRUCTION SEQUENCING AND LEVEL OF SITE STABILIZATION.
5. CONTRACTOR SHALL IMPLEMENT APPROPRIATE INLET PROTECTION FOR ALL STORM DRAINS, SWALES, PONDS AND RAIN GARDENS UNTIL SITE IS FULLY STABILIZED.
6. CONTRACTOR SHALL IMPLEMENT APPROPRIATE INLET PROTECTION FOR DOWNSPOUT CONNECTIONS, TO THE STORM DRAIN SYSTEM, UNTIL CONNECTION IS ESTABLISHED WITH DOWNSPOUT.
7. INLET PROTECTION SHALL BE ADAPTED, AS NECESSARY, TO THE SURROUNDING SURFACE TYPE AND CONDITION (i.e., STAKE-DRIVEN WATTLES FOR BARE SOIL, SAND BAGS OR GRAVEL SOCKS FOR PAVEMENT, ETC.)
8. CONTRACTOR IS RESPONSIBLE FOR STABILIZING ALL SLOPES, PARTICULARLY THOSE STEEPER THAN 6:1. CRIMP MULCHING, HYDRO MULCHING, EROSION MATS, TEMPORARY IRRIGATION, AND ADDITIONAL WATTLES OR SILT FENCING MAY BE NECESSARY TO ESTABLISH VEGETATIVE COVER AND STABILIZE THE SLOPE.
9. ADDITIONAL WATTLES, SILT FENCE, OR OTHER MEASURES, MAY BE NECESSARY TO INSURE THAT EACH BUILDING PAD IS STABILIZED THROUGHOUT CONSTRUCTION. AT NO TIME SHALL SEDIMENT BE ALLOWED TO CROSS THE PUBLIC SIDEWALKS.
10. CONTRACTOR SHALL IMPLEMENT APPROPRIATE PERIMETER PROTECTION FOR AREAS DIRECTING DRAINAGE OFFSITE. PERIMETER PROTECTION SHALL BE ADAPTED, AS NECESSARY, TO THE SURROUNDING SURFACE TYPE AND CONDITION (i.e., STAKE-DRIVEN SEDIMENT CONTROL LOGS OR SILT FENCE FOR BARE SOIL, SAND BAGS OR GRAVEL SOCKS FOR PAVEMENT, ETC.)
11. FUELING FACILITIES SHALL BE LOCATED AT LEAST ONE HUNDRED (100) FEET FROM NATURAL BODY OF WATER, WETLAND, NATURAL DRAINAGE WAY OR MANMADE DRAINAGE WAY. THE FUEL TANKS AND FUELING AREA MUST BE SET IN A CONTAINMENT AREA THAT WILL NOT ALLOW A FUEL SPILL TO DIRECTLY FLOW, SEEP, RUN OFF, OR BE WASHED INTO A BODY OF WATER, WETLAND OR DRAINAGE WAY.
12. CONSTRUCTION WASTE STORAGE (DUMPSTERS) AND PORTABLE SANITATION UNITS (CONSTRUCTION TOILETS) SHALL BE LOCATED AT LEAST FIFTY (50) FEET FROM ANY STORMWATER INLET, WETLAND, OR DRAINAGE WAY. SAID FACILITIES MUST BE SET IN A CONTAINMENT AREA THAT WILL NOT ALLOW POLLUTANTS TO DIRECTLY FLOW, SEEP, RUN OFF, OR BE WASHED INTO A BODY OF WATER, WETLAND OR DRAINAGE WAY. DUMPSTERS SHALL BE LOCATED ON FLAT, STABLE GROUND, AND CONSTRUCTION TOILETS SHALL BE STAKED DOWN.
13. THE CONTRACTOR AND ALL SUBCONTRACTORS WILL COOPERATE WITH THE CITY'S CONSTRUCTION INSPECTORS BY CEASING OPERATIONS WHEN WINDS ARE OF SUFFICIENT VELOCITY TO CREATE BLOWING DUST WHICH, IN THE INSPECTOR'S OPINION, IS HAZARDOUS TO THE PUBLIC HEALTH AND WELFARE.
14. WHERE SEASONAL CONSTRAINTS (E.G., DURING SUMMER AND WINTER MONTHS) INHIBIT PERMANENT SEEDING OPERATIONS, DISTURBED AREAS WILL BE TREATED WITH MULCH AND MULCH TACKIFIER OR OTHER MATERIALS APPROVED BY EROSION CONTROL STAFF TO PREVENT EROSION.
15. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION ON PLANTING, REVEGETATION, HARDSCAPE AND OTHER PERMANENT SITE STABILIZATION METHODS.
16. ALL ROOF DRAIN SYSTEM INLETS SHAL BE PLUGGED UNTIL CONNECTED TO BUILDINGS.



GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
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LEGEND:

PROJECT BOUNDARY		
PROPOSED CURB & GUTTER		
PROJECT BOUNDARY	93	
PROPOSED CURB & GUTTER	5013	
PROPOSED PERFORATED STROM	UD	
PROPOSED STORM SEWER		
EXISTING STORM SEWER	ST	
PROPOSED PERFORATED STROM		
SILT FENCE	SF	SF
SCOUR STOP		SS
INLET PROTECTION		IPX
STRAW WATTLE PROTECTION		SW
ROCK SOCK WITH MARKER		RS
VEHICLE TRACKING PAD		VTC
CONCRETE WASHOUT AREA		CWA
OUTFALL PROTECTION		OP

NOTES:

1. CONTRACTOR SHALL IMMEDIATELY STABILIZE ALL DISTURBED SLOPES BY CRIMP MULCHING OR SIMILAR METHODS (AS APPLICABLE).
2. TOTAL DISTURBED AREA = 2.17 ACRES
3. SWMP ADMINISTRATOR:
   Contact ______________
   Company ______________
   Address ______________
   Phone ______________
4. REMOVE SEDIMENT THAT IS TRACKED ONTO THE PUBLIC RIGHT OF WAY DAILY OR MORE FREQUENTLY ASS NEEDED. EXCESS SEDIMENT IN THE ROADWAY INDICATES THAT THE STABILIZED CONSTRUCTION ENTRANCE NEEDS MAINTENANCE.
5. CONTRACTOR TO PROVIDE VEHICLE TRACKING CONTROL FOR CONCRETE WASHOUT AREA IF ACCESS IS OFF PAVEMENT.
6. REFER TO THE STORM WATER MANAGEMENT PLAN & EROSION CONTROL REPORT FOR "NEC LAKE AND SHIELDS", DATED 10.02.2018 FOR ADDITIONAL INFORMATION.

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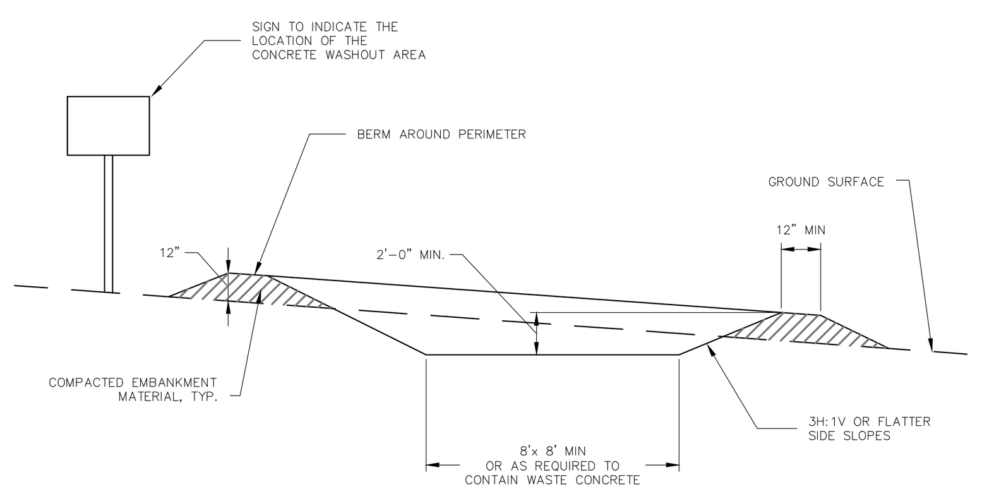
REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS

EROSION CONTROL PLAN

Sheet C5.00



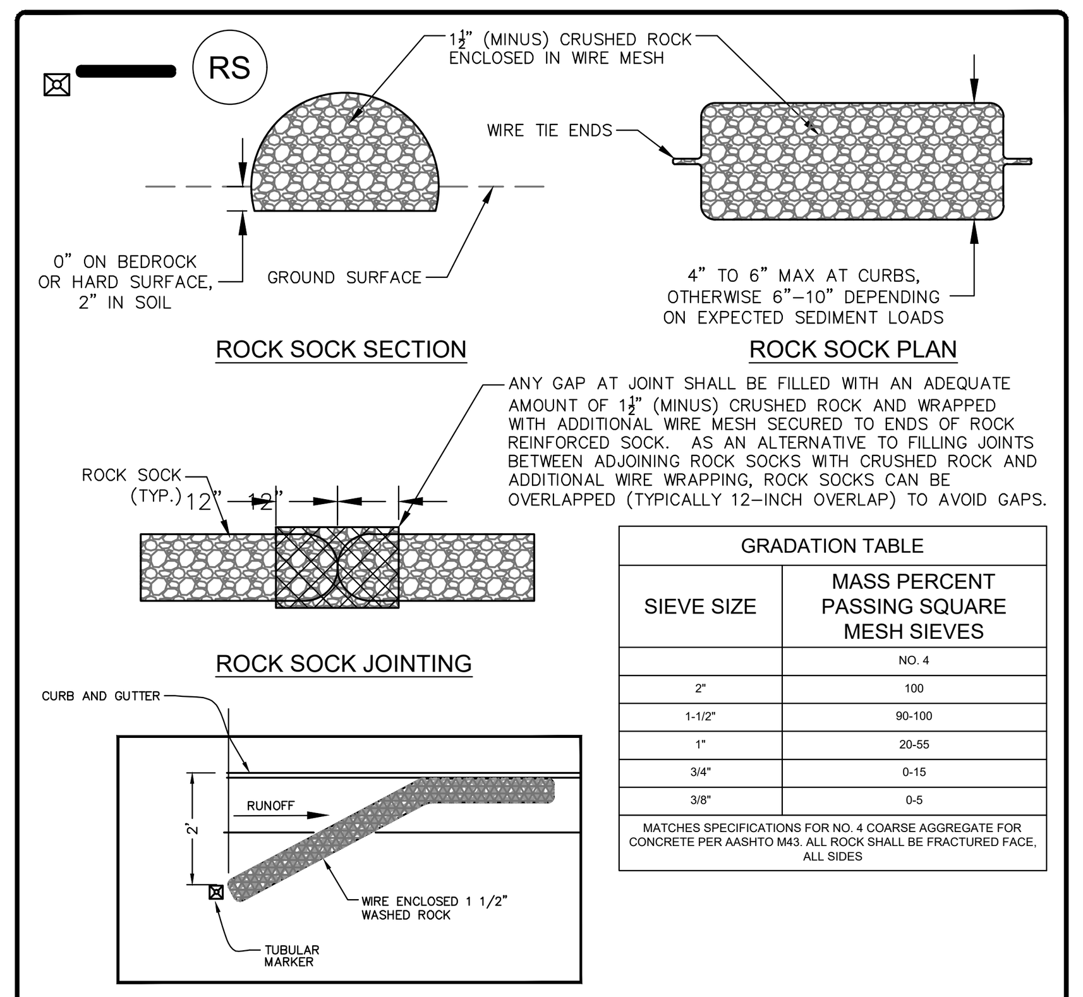
NOTES:

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. VEHICLE TRACKING CONTROL IS REQUIRED IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
3. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
4. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN ACCEPTED WASTE SITE.
6. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE CITY.
7. LOCATION OF CONCRETE WASHOUT AREA ON SHEET EC1 IS CONCEPTUAL ONLY. FINAL LOCATION TO BE DETERMINED IN THE FIELD AT CONTRACTOR'S DISCRETION.

CWA

01 / C5.01 CONCRETE WASHOUT AREA

NOT TO SCALE



GRADATION TABLE	
SIEVE SIZE	MASS PERCENT PASSING SQUARE MESH SIEVES
	NO. 4
2"	100
1-1/2"	90-100
1"	20-55
3/4"	0-15
3/8"	0-5
MATCHES SPECIFICATIONS FOR NO. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES	

ROCK SOCK INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   – LOCATION (S) OF ROCK SOCKS.
2. CRUSHED ROCK SHALL BE 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1½" MINUS).
3. WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF ½", RECOMMENDED MINIMUM ROLL WIDTH OF 48".
4. WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
5. SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

02 / C5.01 ROCK SOCK DETAIL

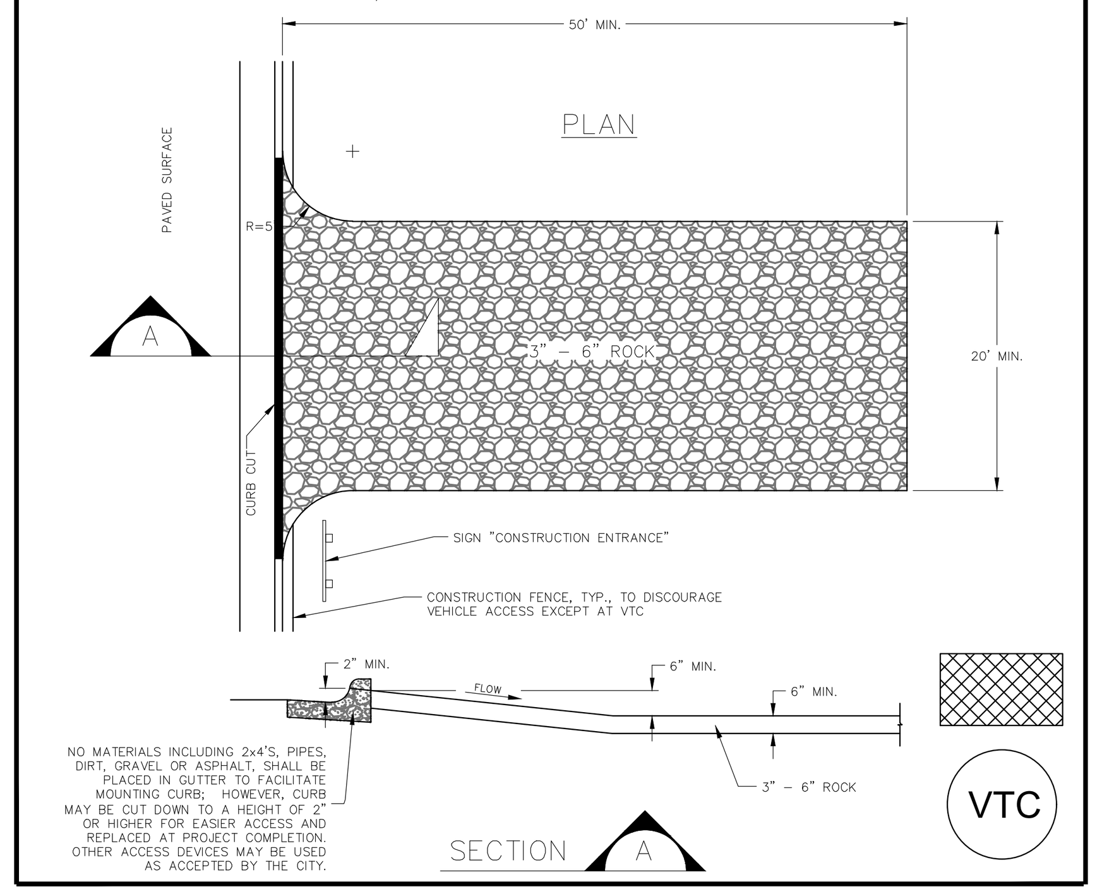
NOT TO SCALE

INSTALLATION NOTES:

1. VEHICLE TRACKING CONTROL PAD SHALL BE LOCATED AT EVERY ACCESS POINT TO THE CONSTRUCTION SITE.
2. A SIGN SHALL BE PLACED NEXT TO THE VEHICLE TRACKING CONTROL PAD TO DESIGNATE THE LOCATION AS THE CONSTRUCTION ENTRANCE/EXIT.
3. VEHICLE TRACKING CONTROL PADS SHALL CONSIST OF HARD, DENSE, DURABLE STONE, ANGULAR IN SHAPE AND RESISTANT TO WEATHERING. ROUNDED STONE (i.e. RIVER ROCK AND COBBLES) SHALL NOT BE USED. THE STONES SHALL BE A MINIMUM OF 3" AND A MAXIMUM OF 6" DIAMETER. THE STONES SHALL HAVE A SPECIFIC GRAVITY OF AT LEAST 2.6. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTION.
4. ANY CRACKED OR DAMAGED CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED BY CONTRACTOR.
5. ALTHOUGH NOT NORMALLY USED, THE CITY RESERVES THE RIGHT TO REQUIRE VEHICLE TRACKING CONTROL WITH A TEMPORARY CATTLE GUARD AND/OR WHEEL WASH FACILITIES AT SITES WHERE TRACKING ONTO PAVED AREAS BECOMES A SIGNIFICANT PROBLEM AS DETERMINED BY THE CITY INSPECTOR.
6. IF VEHICLE TRACKING CONTROL WITH WHEEL WASH FACILITIES ARE REQUIRED, ALL WHEELS ON EVERY VEHICLE LEAVING THE SITE SHALL BE CLEANED OF MUD USING A PRESSURE-WASHER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER SOURCE AND CONSTRUCTING A WASHWATER SEDIMENT TRAP.

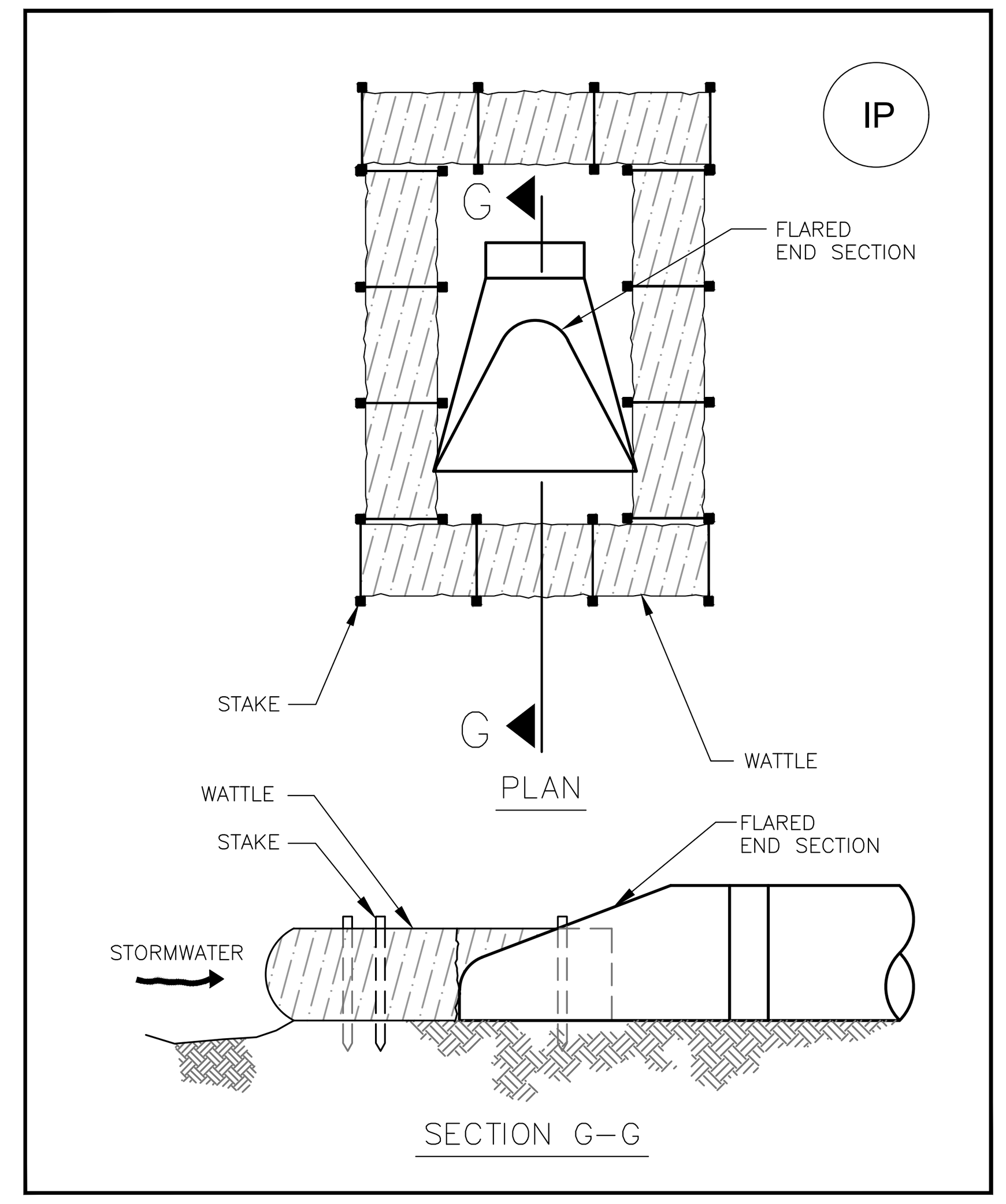
MAINTENANCE NOTES:

1. CONTRACTOR SHALL INSPECT VEHICLE TRACKING CONTROL PAD DAILY. ROCK SURFACE SHALL BE CLEAN AND LOOSE ENOUGH TO RUT SLIGHTLY UNDER WHEEL LOADS AND CAUSE LOOSE ROCK TO DISLODGE MUD FROM TIRES. WHEN ROCK BECOMES COMPACTED OR FILLED WITH SEDIMENT SO THAT THE EFFECTIVENESS OF THE PAD IS DIMINISHED, CONTRACTOR SHALL RIP, TURN OVER, OR OTHERWISE LOOSEN ROCK, PLACE ADDITIONAL NEW ROCK, OR REPLACE WITH NEW ROCK AS NECESSARY TO RESTORE EFFECTIVENESS.
2. SEDIMENT AND OTHER MATERIAL SPILLED, DROPPED OR TRACKED ONTO PAVED SURFACES SHALL BE REMOVED IMMEDIATELY OR BY THE END OF EACH WORKING DAY.
3. VEHICLE TRACKING CONTROL PAD SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE AREA SHOULD BE TOPSOILED, SEEDED, CRIMPED, AND MULCHED OR OTHERWISE STABILIZED.
4. IF VEHICLE WHEEL WASH FACILITIES ARE REQUIRED, CONTRACTOR SHALL INSPECT VEHICLE TRACKING CONTROL AND WHEEL WASH FACILITIES DAILY. ACCUMULATED SEDIMENTS SHALL BE REMOVED FROM THE PAD SURFACE.
5. ACCUMULATED SEDIMENT IN THE WASHWATER/SEDIMENT TRAP SHALL BE REMOVED WHEN THE SEDIMENT REACHES AN AVERAGE DEPTH OF 12-INCHES.



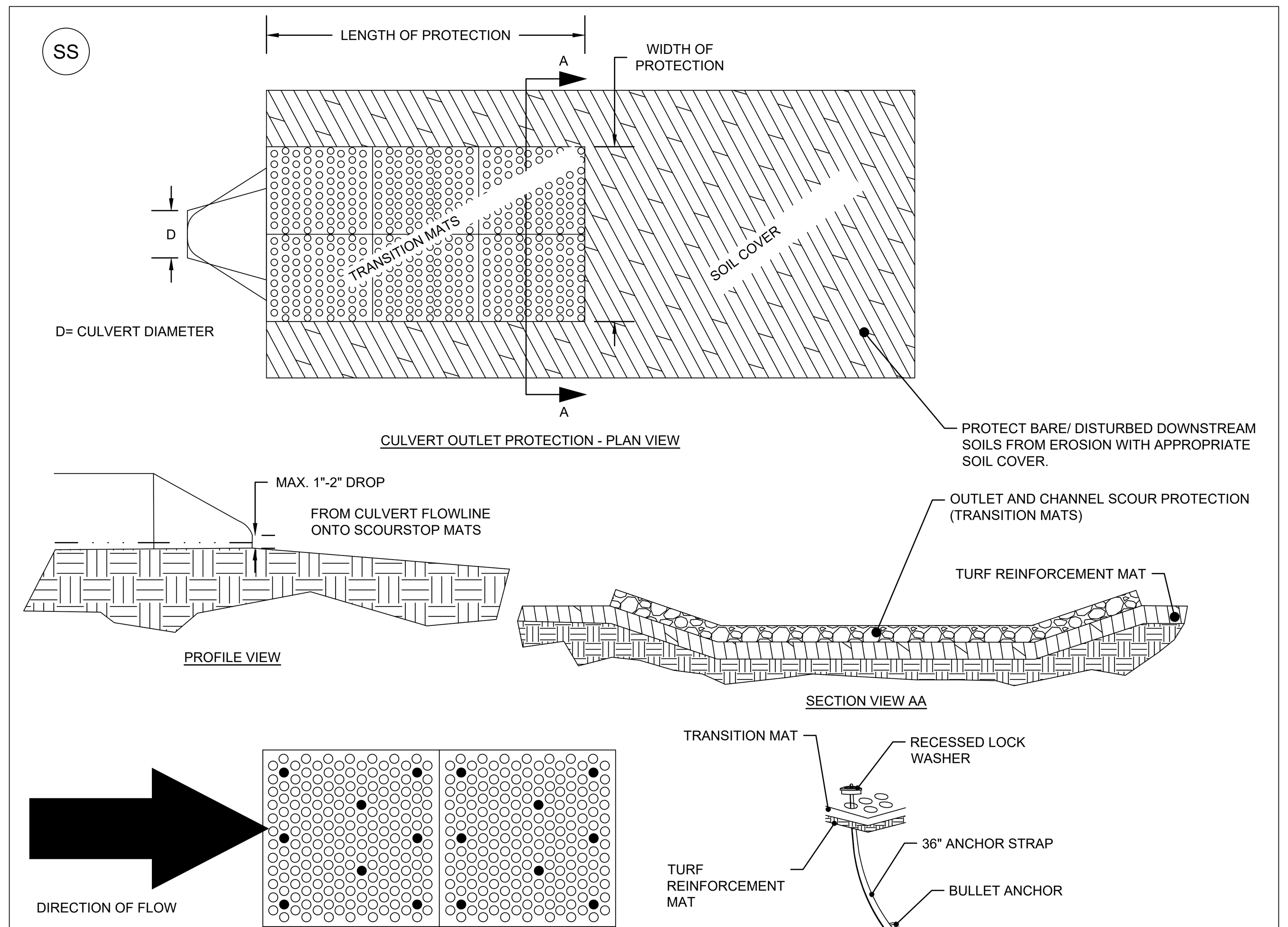
03 / C5.01 VEHICLE CONTROL TRACKING PAD

NOT TO SCALE



04 / C5.01 FES INLET PROTECTION

NOT TO SCALE



ANCHOR PATTERN

ABUT TRANSITIONS MATS TO END OF CULVERT OR CULVERT APRON.
ADJACENT MATS ABUT TOGETHER LATERALLY AND LONGITUDINALLY.
MINIMUM 8 ANCHORS PER MAT.
EXTRA ANCHORS AS NEEDED FOR LOOSE OR WET SOILS.

ANCHOR ILLUSTRATION

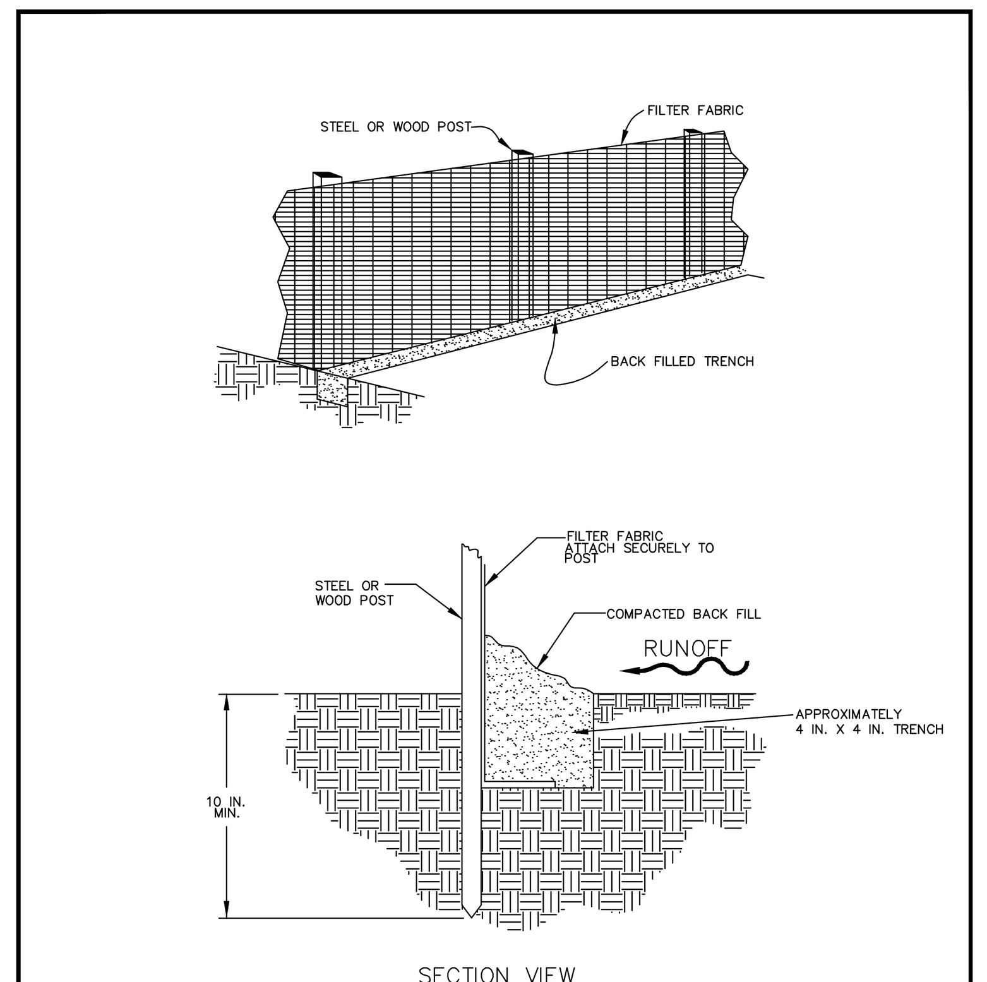
INSTALL ANCHORS PER SCOURSTOP INSTALLATION GUIDELINES
MINIMUM DEPTH 24" IN COMPACTED, COHESIVE SOIL.
MINIMUM DEPTH 30" IN LOOSE, SANDY, OR WET SOIL
EXTRA ANCHORS AS NEEDED TO SECURE MAT TIGHTLY OVER SOIL COVER

Scourstop Schedule			
Storm Line	Pipe Diameter (in)	Velocity (cfs)	Transition Mat W x L
A	15	4.54	4' x 4'
B	12	3.82	4' x 4'
C	12	12.06	4' x 8'
D	12	3.43	4' x 4'
E	12	2.83	4' x 4'
Curb Cuts and Sidewalk Chases			
Design Point	Width (in)	Velocity (cfs)	Transition Mat W x L
s1	3	3.56	8'x8'
s2	2	2.06	8'x8'

NOTE:
1. SCOUR STOP MAT PRODUCT UTILIZED FOR TURF REINFORCEMENT MAT DIMENSIONS. OTHER TURF REINFORCEMENT MAT PRODUCTS EQUAL TO OR BETTER ALLOWED WITH APPROVAL OF THE ENGINEER AND CITY.
2. SEEDING AT OUTFALL OF STORM SEWER SHALL BE COMPLETED PRIOR TO INSTALLATION OF TURF REINFORCEMENT MAT.

05 / C5.01 TURF REINFORCEMENT MAT - SCOUR STOP

NOT TO SCALE



GENERAL NOTES:
1. THE MAXIMUM TRIBUTARY AREA IS LIMITED TO 0.25 ACRES PER 100 FEET OF FENCE.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT. REMOVE SEDIMENT WHEN ONE HALF THE HEIGHT OF THE FENCE HAS BEEN FILLED. REMOVED SEDIMENT SHALL BE DEPOSITED IN AN AREA TRIBUTARY TO A SEDIMENT BASIN OR OTHER FILTERING MEASURE.

SF

City of Fort Collins — CITY OF FORT COLLINS UTILITIES — STORMWATER CONSTRUCTION DETAILS — APPROVED: DATE: 0/0/00 DRAWN BY: — DETAIL X

06 / C5.01 SILT FENCE

NOT TO SCALE

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811 Know what's below. Call before you dig.
CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

Revisions: No. By: Date:

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

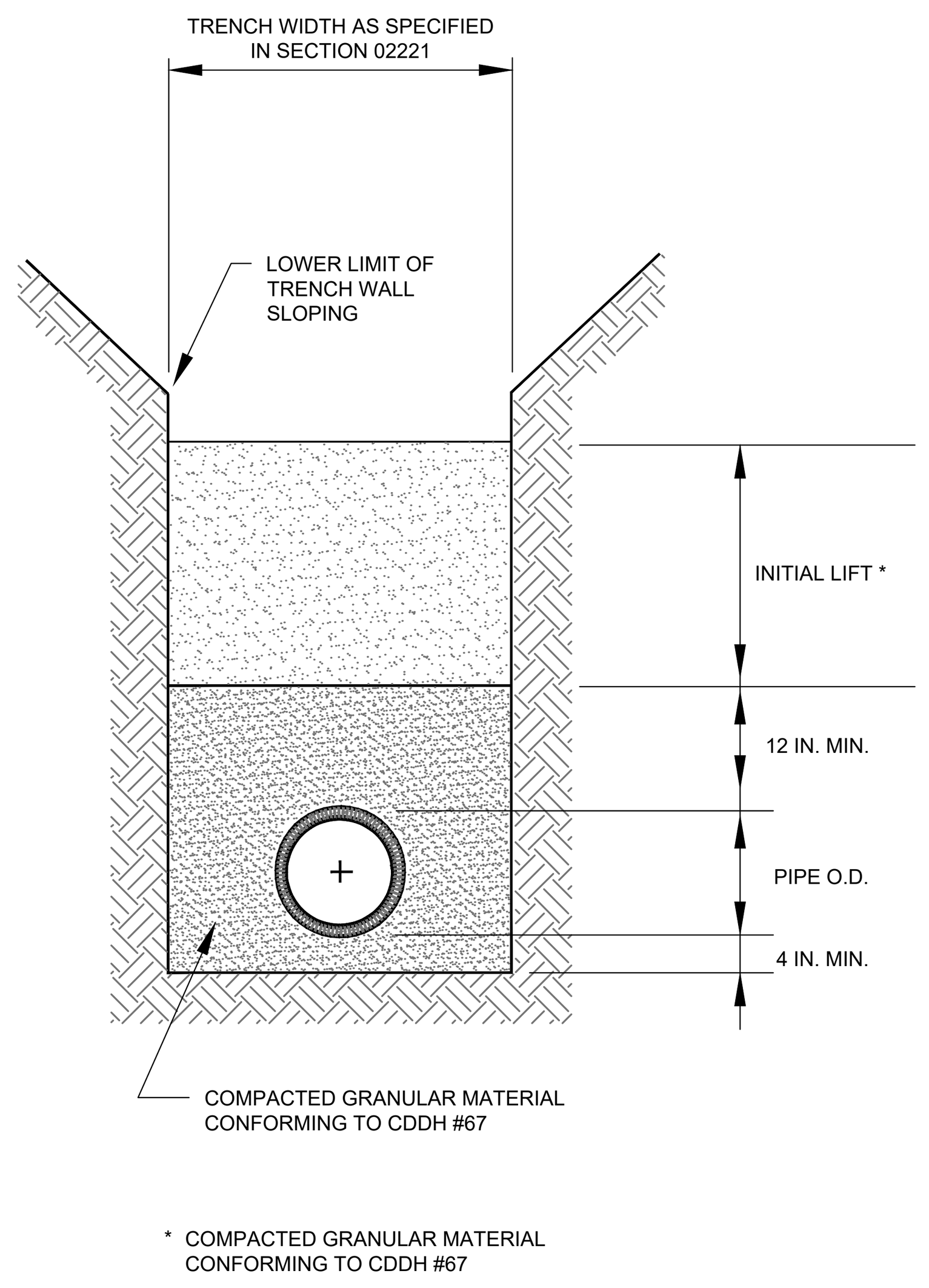
These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158 northernengineering.com

PROJECT: 232-047
DATE: 10/03/2018
DESIGNED BY: B. MATHISEN
SCALE: 1"=30'
DRAWN BY: B. MATHISEN
REVIEWED BY: C. SNOWDON

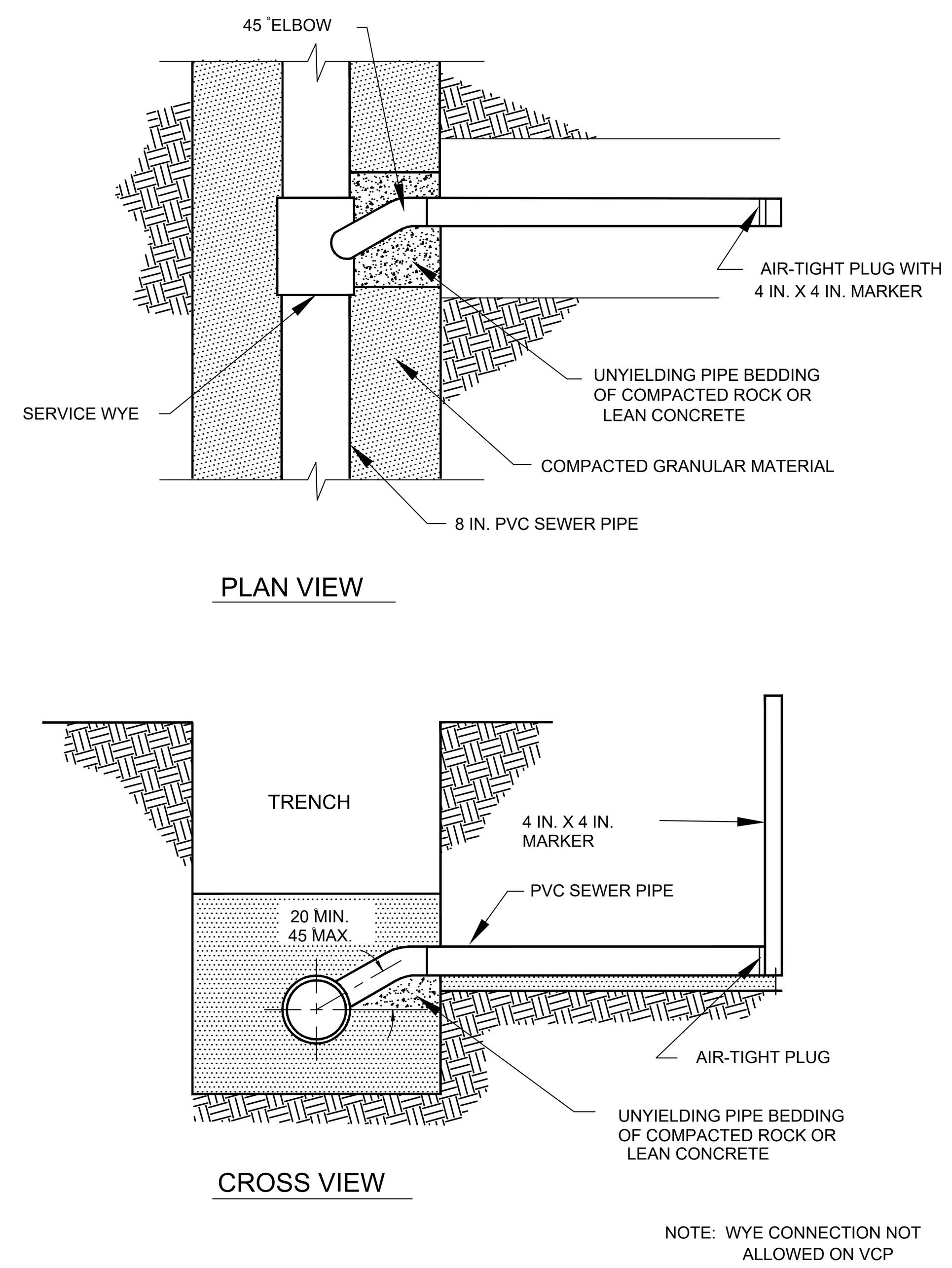
NEC LAKE & SHIELDS
EROSION CONTROL DETAILS

Sheet
C5.01
10 of 15



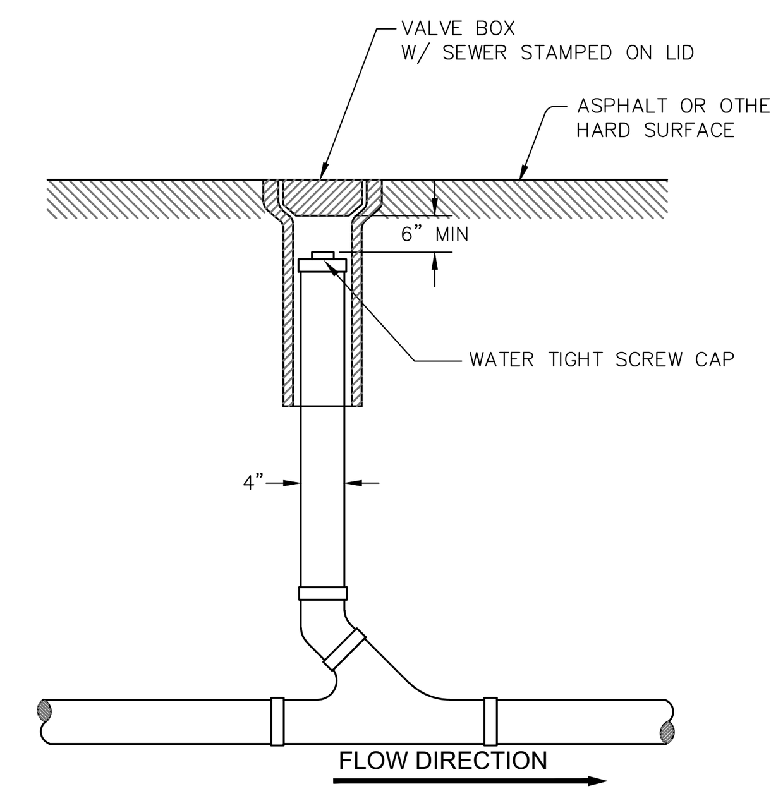
BEDDING REQUIRMENTS

City of Fort Collins — SEWER CONSTRUCTION DETAILS — APPROVED: — DATE REVISED: 4/11/11 — DRAWN BY: NBJ — DETAIL WW-1



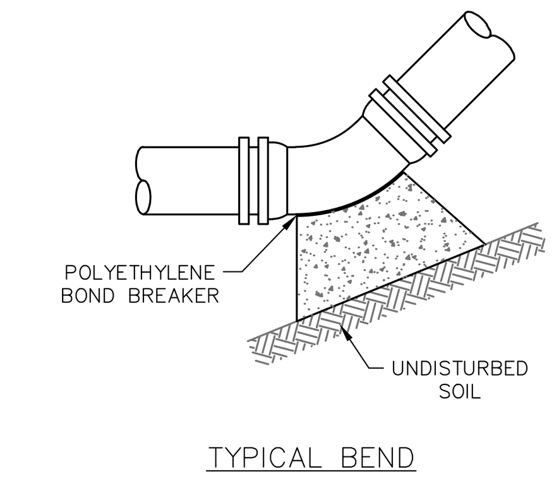
SERVICE WYE DETAIL

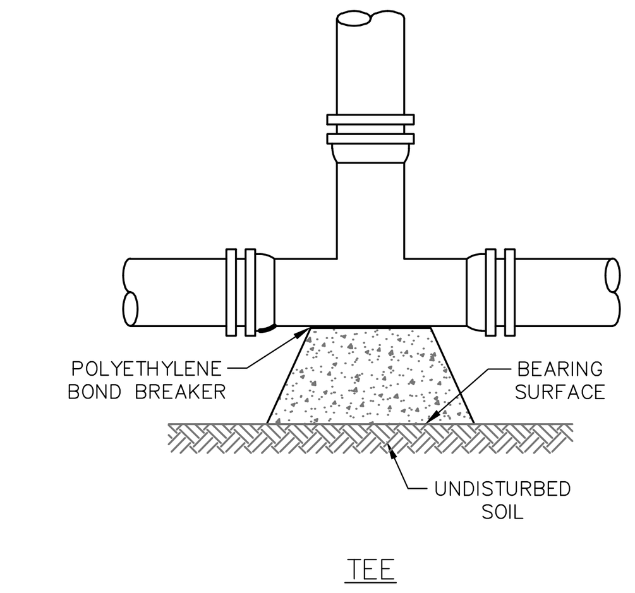
City of Fort Collins — SEWER CONSTRUCTION DETAILS — APPROVED: — DATE REVISED: 4/11/11 — DRAWN BY: NBJ — DETAIL WW-9

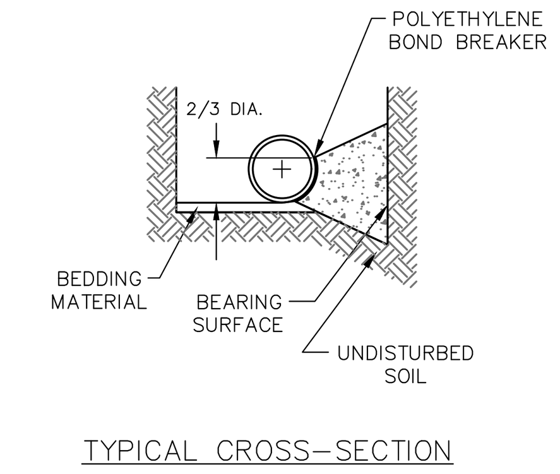


TRAFFIC RATED CLEANOUT

City of Fort Collins — SEWER CONSTRUCTION DETAILS — APPROVED: — DATE REVISED: 4/11/11 — DRAWN BY: NBJ — DETAIL WW-15

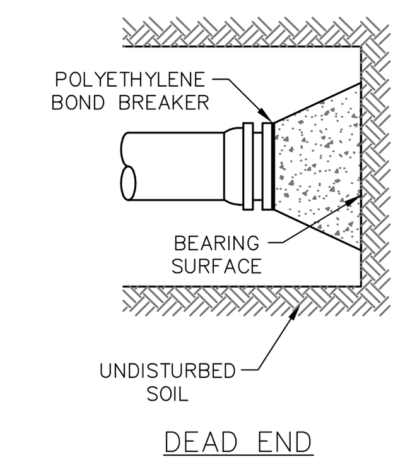






MINIMUM BEARING SURFACE AREA (SQ. FT.)					
PIPE SIZE	BENDS				TEE OR DEAD END
	11 1/4°	22 1/2°	45°	90°	
6"	1.0	1.5	2.5	4.5	3.5
8"	1.5	2.5	4.5	8.0	5.5
12"	3.0	4.5	9.0	16.5	12.0
16"	4.8	9.6	18.9	34.7	24.5

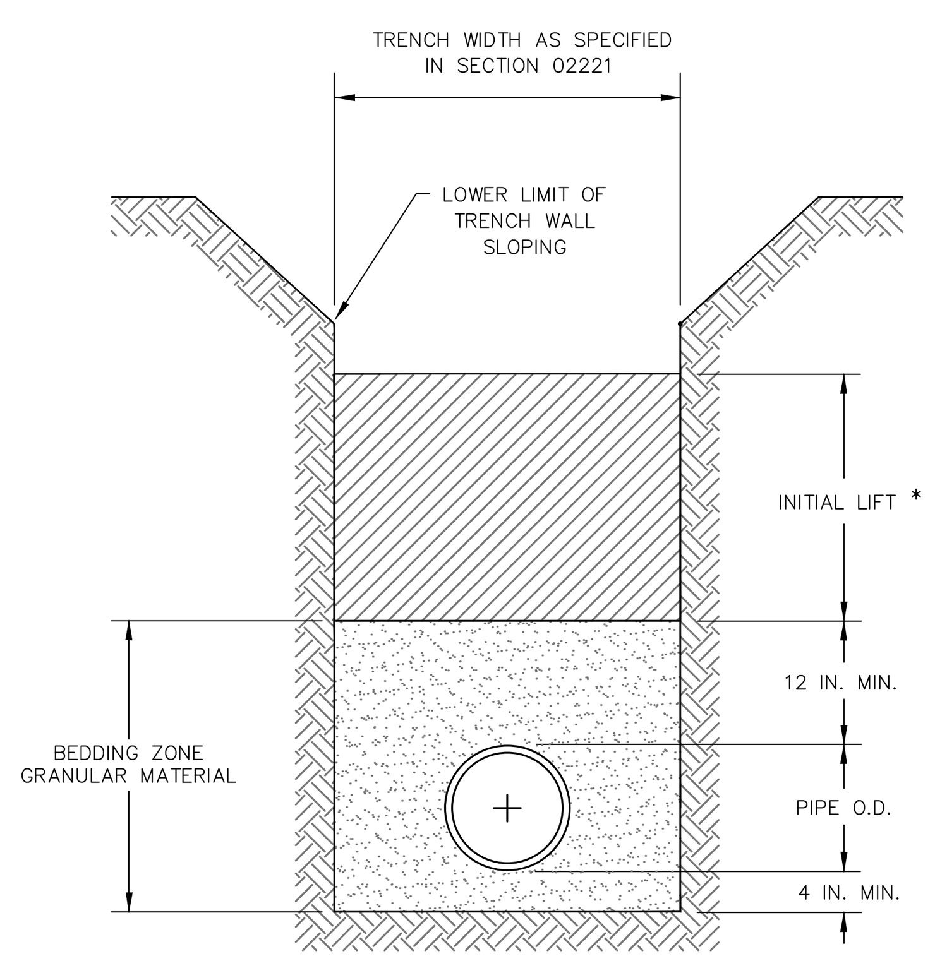
BEARING SURFACES ARE A MINIMUM REQUIREMENT AND DO NOT RELIEVE DESIGN ENGINEER OF RESPONSIBILITY TO DESIGN EACH THRUST BLOCK.



GENERAL NOTES:

1. Bearing surface areas shown in chart are minimum.
2. All fittings to be wrapped with polyethylene.
3. Pipe installed under conditions different from those normally encountered shall require thrust blocks designed for those particular conditions.
4. Thrust blocks on pipe larger than 16 inches diameter shall be designed for conditions existing at the installation site.
5. Refer to Section 03300 for concrete requirements.

City of Fort Collins — CITY OF FORT COLLINS UTILITIES – WATER FIELD OPERATIONS P.O. BOX 580 FORT COLLINS, CO. 80550 (970) 221-6700 — TITLE OF DRAWING: STANDARD CONCRETE THRUST BLOCKS — REVISED DATE: 4/8/11 — DETAIL 2

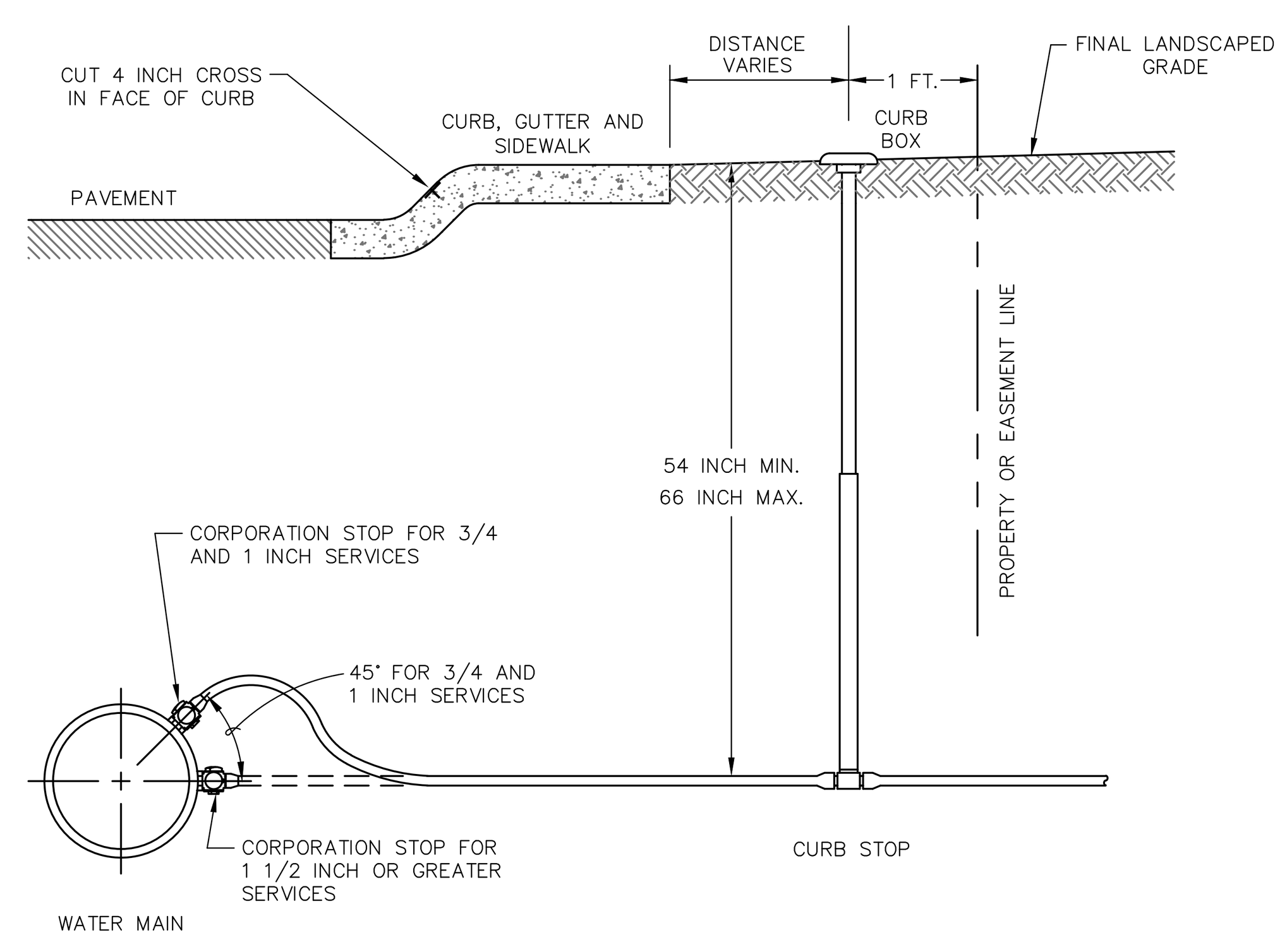


* INITIAL LIFT SHALL NOT EXCEED 2 FEET IN DEPTH.

NOTE:

GRANULAR BEDDING MATERIAL SHALL BE A MINIMUM OF 4 INCHES BELOW BOTTOM OF PIPE AND A MINIMUM OF 12 INCHES ABOVE TOP OF PIPE.

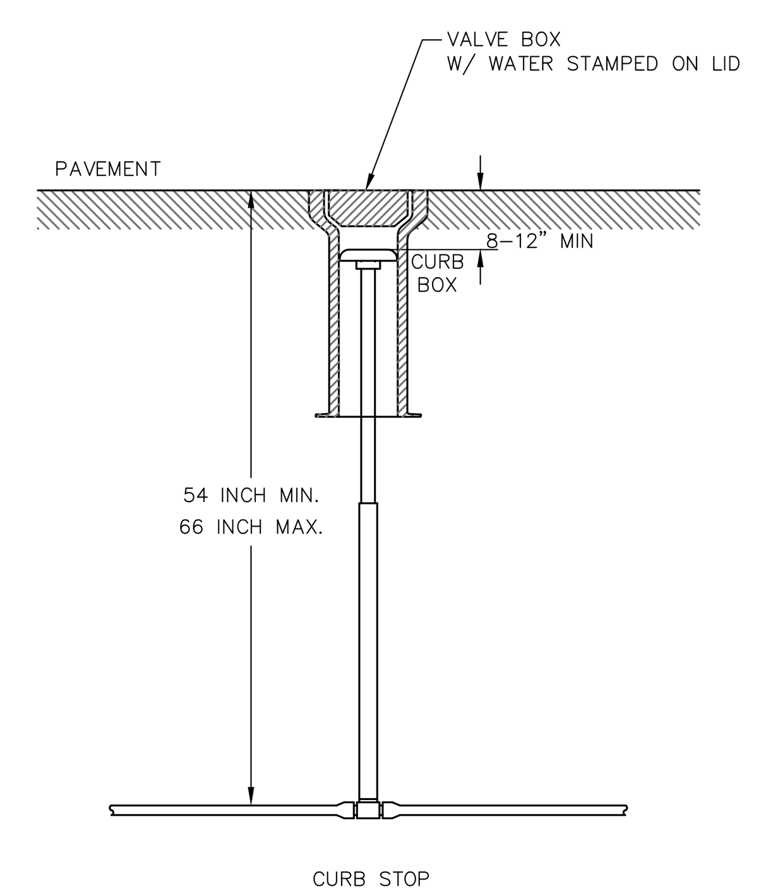
City of Fort Collins — CITY OF FORT COLLINS UTILITIES – WATER FIELD OPERATIONS P.O. BOX 580 FORT COLLINS, CO. 80550 (970) 221-6700 — TITLE OF DRAWING: WATER MAIN BEDDING REQUIREMENTS (DIP & PVC) — REVISED DATE: 4/8/11 — DETAIL 1



GENERAL NOTES

1. Use direct tap (as shown) for 3/4 inch and 1 inch services unless water main is PVC, in which case, use a tapping saddle.
2. Install 1 1/2 inch and 2 inch services with tapped tee and corporation stop at time of construction or use a tapping saddle.
3. Locate curb box and meter pit according to the approved utility drawings.
4. The City is responsible for maintaining the water main, corporation stop, and service piping up to and including the curb stop. The owner is responsible for service from the curb stop, including the outlet coupling to the building.
5. No couplings allowed between curb stop and meter setting.
6. Use type K copper for the service from the corporation stop to a minimum of 5 feet past the meter pit.
7. No landscaping (shrubs, boulders, etc.), retaining walls or fences allowed within 4 feet of the curb stop and meter pit, and no trees within 10 feet of curb and meter pit.
8. All residential water service shall be installed in the center of the lot unless otherwise approved by the Utility.
9. All water and sanitary sewer service shall have a minimum horizontal separation of ten feet.

City of Fort Collins — CITY OF FORT COLLINS UTILITIES – WATER FIELD OPERATIONS P.O. BOX 580 FORT COLLINS, CO. 80550 (970) 221-6700 — TITLE OF DRAWING: TYPICAL WATER SERVICE — REVISED DATE: 4/12/11 — DETAIL 11



GENERAL NOTES

1. Locate curb box and water meter according to the approved utility drawings.
2. Compact trench as required by Development Construction Standard to support valve box.

City of Fort Collins — CITY OF FORT COLLINS UTILITIES – WATER FIELD OPERATIONS P.O. BOX 580 FORT COLLINS, CO. 80550 (970) 221-6700 — TITLE OF DRAWING: TRAFFIC-RATED CURB STOP INSTALLATION — REVISED DATE: 7/17/2014 — DETAIL 11A

City of Fort Collins, Colorado UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

No. Revisions: By: Date:

REVIEW SET NOT FOR CONSTRUCTION 10/03/2018

These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

NORTHERN ENGINEERING
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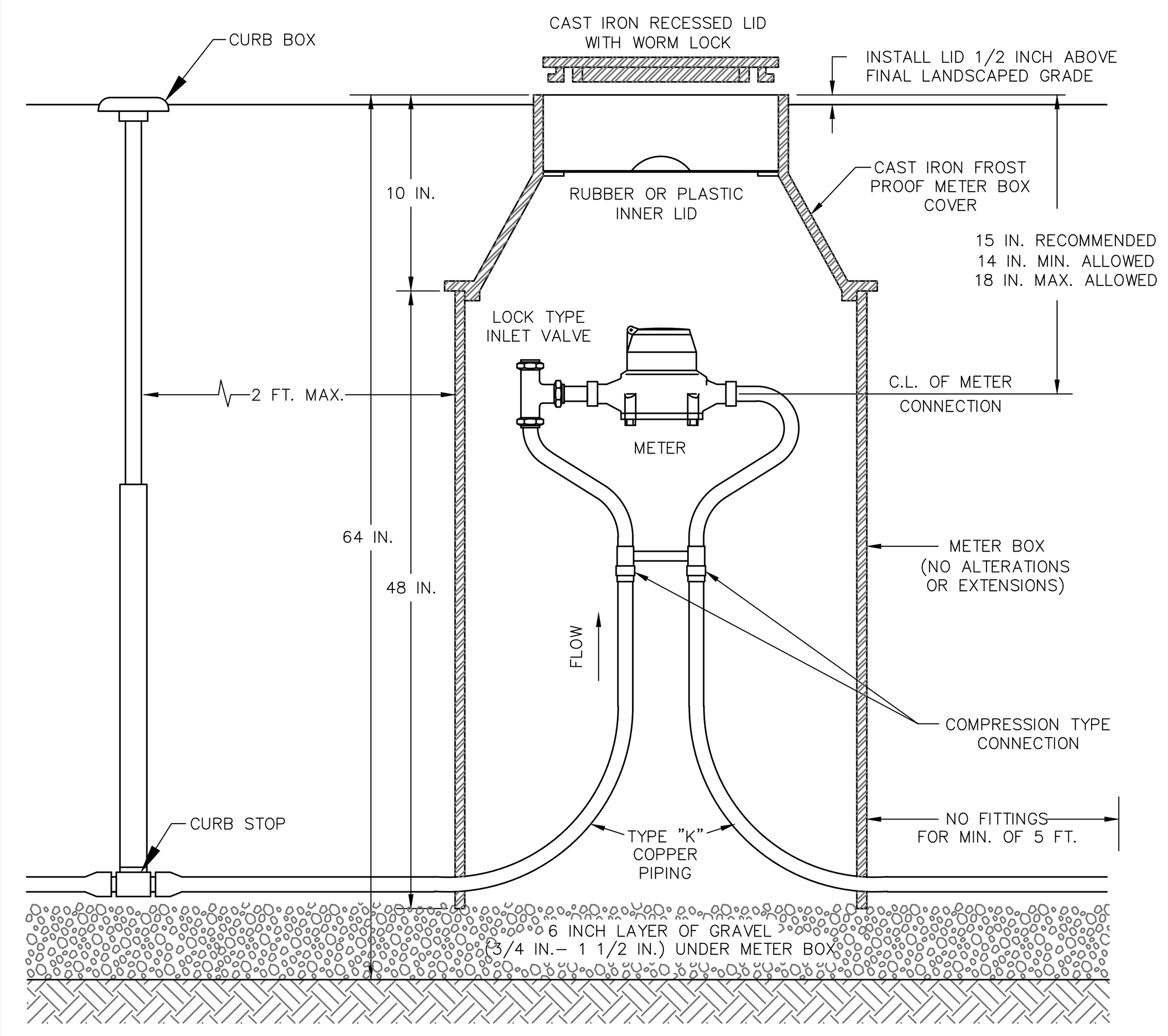
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

PROJECT: 232-047 — DATE: 10/03/2018 — SCALE: 1"=30' — DESIGNED BY: B. MATHISEN — DRAWN BY: B. MATHISEN — REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS

DETAILS

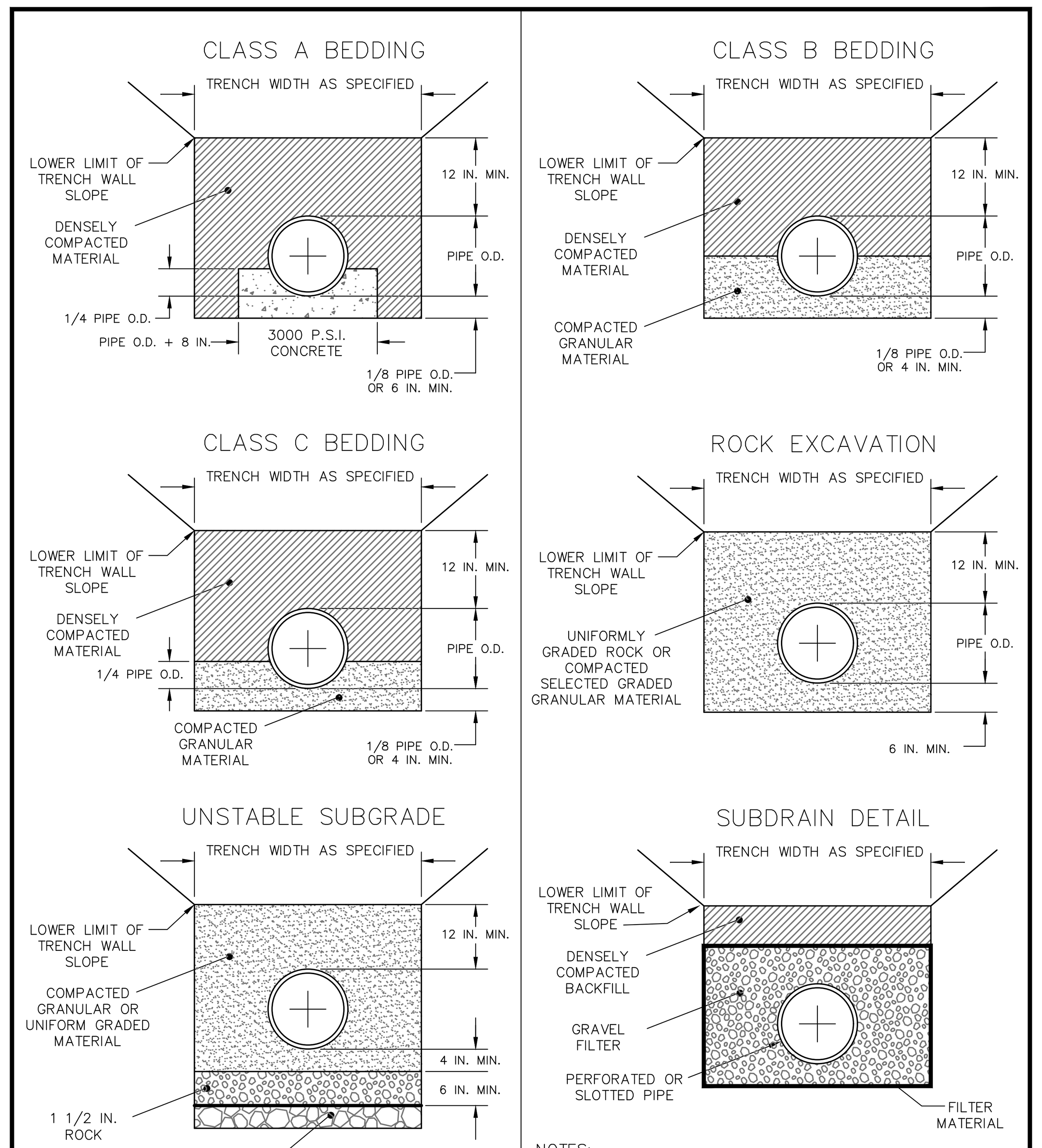
Sheet C6.00



GENERAL NOTES

1. DO NOT INSTALL IN ANY STREET, ALLEY, PARKING AREA, DRIVEWAY, SIDEWALK, DRAINAGE DITCH OR DETENTION BASIN.
2. NO LANDSCAPING (SHRUBS, BOULDERS, ETC.) OR STRUCTURES TO BE WITHIN 4 FEET OF METER BOX, OR NO TREES WITHIN 10 FEET OF METER BOX.
3. SLOPE GROUND SURROUNDING METER BOX AWAY FROM LID AT 2% MINIMUM GRADE.
4. MAKE NO PLUMBING CONNECTIONS (TEES, COUPLINGS, ETC.) IN METER BOX.
5. ALL TEES AND CONNECTION FITTINGS TO BE A MINIMUM OF 5 FEET FROM METER BOX WALL ON OUTLET SIDE.
6. GRADE ACCEPTANCE AFTER METER BOX INSTALLATION REQUIRES THAT THE OWNER ADJUST METER BOX COVER TO 1/2 INCH ABOVE FINAL GRADE.
7. IF A PRESSURE REDUCING VALVE IS REQUIRED BY PLUMBING CODE, INSTALL VALVE INSIDE THE BUILDING, IMMEDIATELY FOLLOWING THE MAIN SHUT–OFF VALVE.

City of Fort Collins — CITY OF FORT COLLINS UTILITIES – WATER FIELD OPERATIONS, P.O. BOX 580, FORT COLLINS, CO. 80550, (970) 221–6700
TITLE OF DRAWING: STANDARD EXTERIOR SETTING FOR 3/4 IN. AND 1 IN. WATER METERS
REVISED DATE: 4/11/11 — DETAIL 15

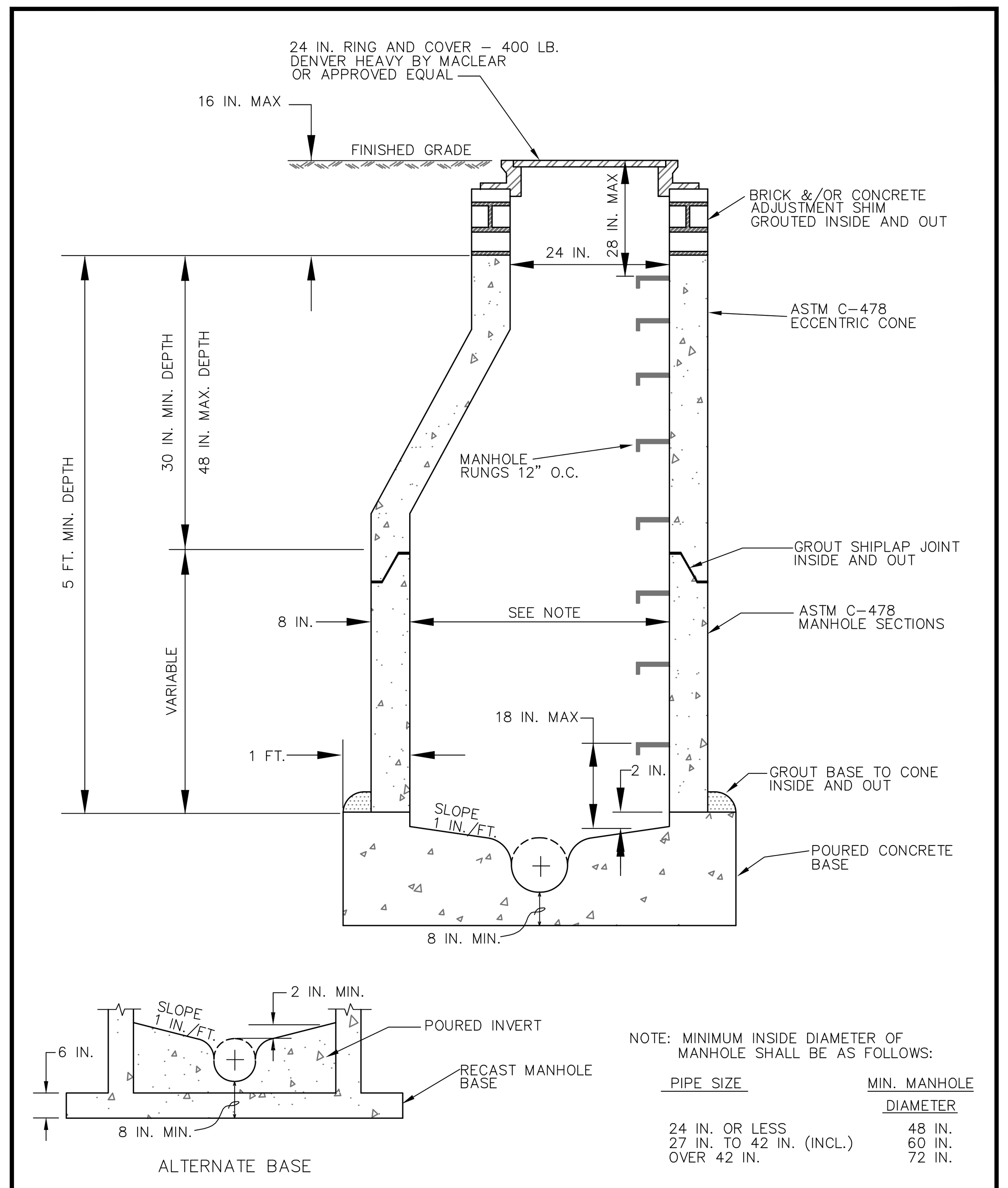


NOTES:

1. TRENCH WIDTHS SHALL BE AS SPECIFIED ON PLANS.
2. REFER TO THE STORM SRAINAGE CONSTRUCTION STANDARDS, SECTION 6, "BEDDING MATERIALS" FOR GRADATIONS.

STORMWATER BEDDING REQUIREMENTS

City of Fort Collins — CITY OF FORT COLLINS UTILITIES, FORT COLLINS, CO. (970) 221–6700 — STORMWATER CONSTRUCTION DETAILS — APPROVED: — DATE: 1/12/00 — DRAWN BY: SKC — DETAIL D–1

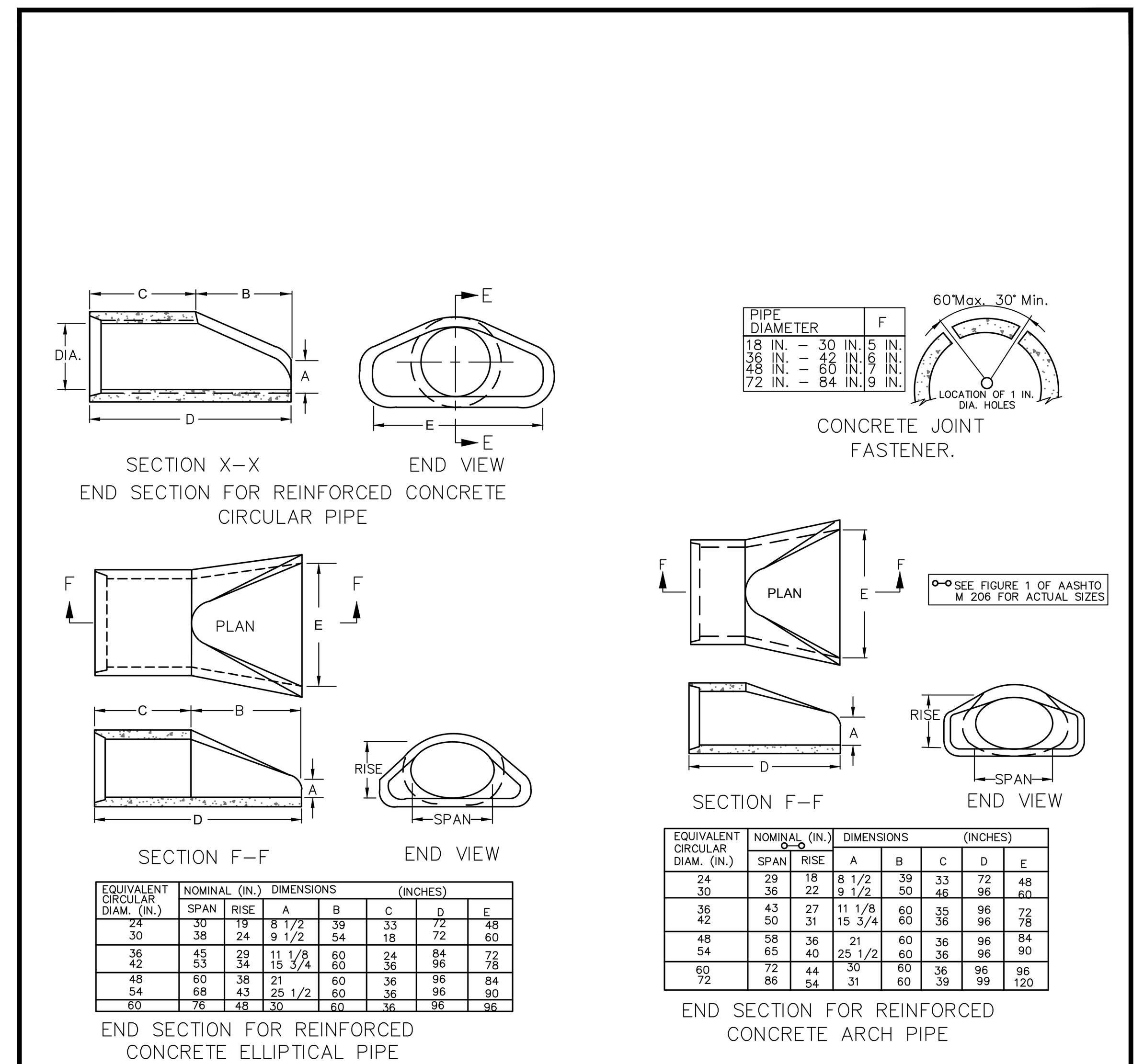


NOTE: MINIMUM INSIDE DIAMETER OF MANHOLE SHALL BE AS FOLLOWS:

PIPE SIZE	MIN. MANHOLE DIAMETER
24 IN. OR LESS	48 IN.
27 IN. TO 42 IN. (INCL.)	60 IN.
OVER 42 IN.	72 IN.

STANDARD MANHOLE

City of Fort Collins — CITY OF FORT COLLINS UTILITIES, FORT COLLINS, CO. (970) 221–6700 — STORMWATER CONSTRUCTION DETAILS — APPROVED: — DATE: 11/7/00 — DRAWN BY: NBJ — DETAIL D–3



EQUIVALENT CIRCULAR DIAM. (IN.)	NOMINAL (IN.) SPAN	RISE	DIMENSIONS (INCHES) A	B	C	D	E
24	30	19	8 1/2	39	33	72	48
30	38	24	9 1/2	54	18	72	60
36	45	29	11 1/8	60	24	84	72
42	53	34	15 3/4	60	36	96	78
48	60	38	21	60	36	96	84
54	68	43	25 1/2	60	36	96	90
60	76	48	30	60	36	96	96

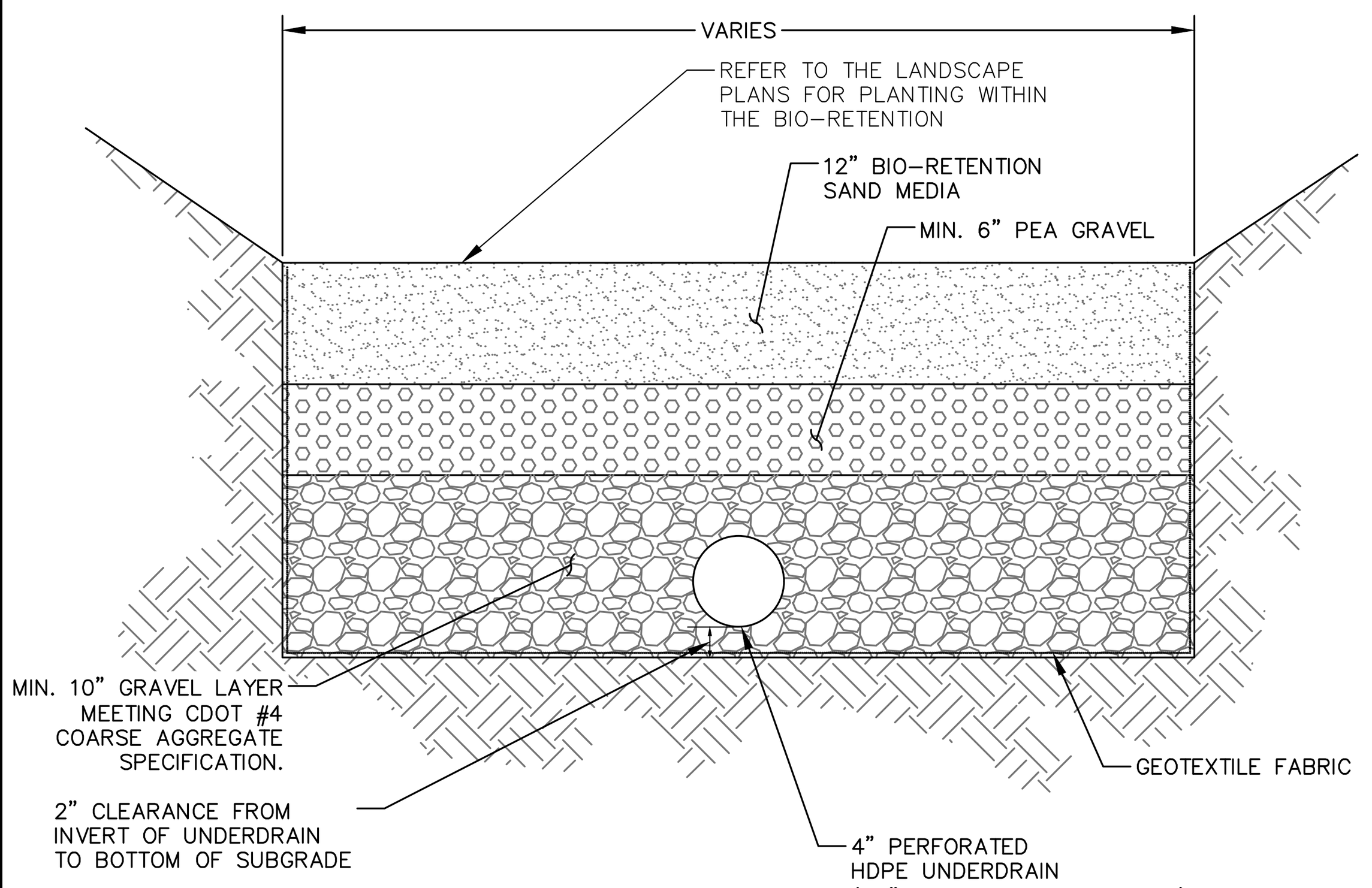
END SECTION FOR REINFORCED CONCRETE ELLIPTICAL PIPE

GENERAL NOTES:

1. REVISED CDOH M–603–10
2. CONCRETE END SECTIONS ARE TO BE FURNISHED WITH TOUGE OR GROOVE AS REQUIRED.
3. INSIDE CONFIGURATION AND JOINT OF CONCRETE END SECTION AND PIPE SHALL MATCH.
4. CONCRETE PIPE JOINT FASTENERS, WHERE SHOWN ON PLANS, SHALL BE INSTALLED SO THAT A MINIMUM OF 15 LINEAR FEET OF THE OUTLET END OF THE ARE MECHANICALLY LOCKED TOGETHER. END SECTION LENGHTS, WHEN USED, WILL BE INCLUDED IN THE 15 L.F. REQUIRED.

CONCRETE END SECTIONS

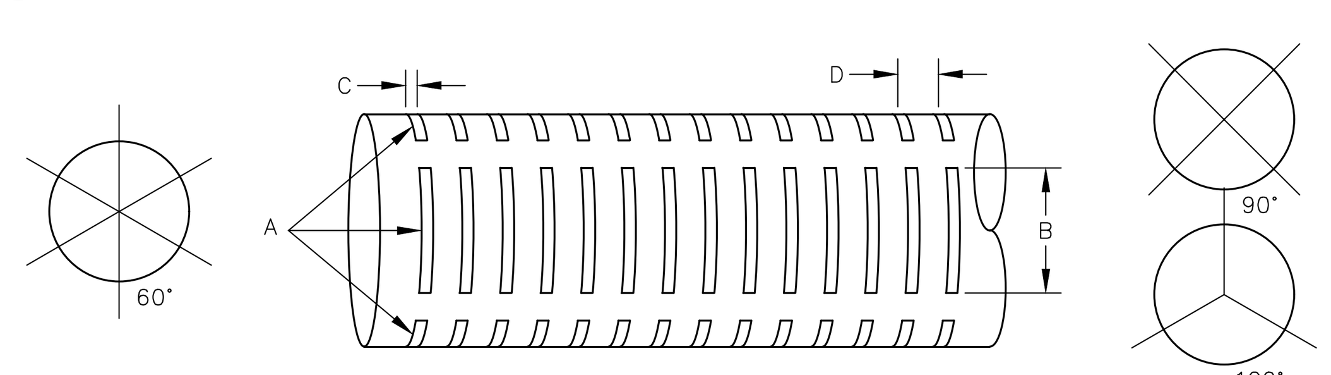
City of Fort Collins — CITY OF FORT COLLINS UTILITIES, FORT COLLINS, CO. (970) 221–6700 — STORMWATER CONSTRUCTION DETAILS — APPROVED: — DATE: 01/31/01 — DRAWN BY: NBJ — DETAIL D–15



NOTES:

1. REFER TO THE BIORETENTION SAND MEDIA SPECIFICATION FOR MORE INFORMATION ON THE SOIL MIX.
2. BIORETENTION SAND MEDIA SHALL BE PROVIDED BY HAGEMAN EARTH CYCLE OR APPROVED EQUAL.

100 / C6.01 — TYPICAL RAIN GARDEN SECTION — NOT TO SCALE

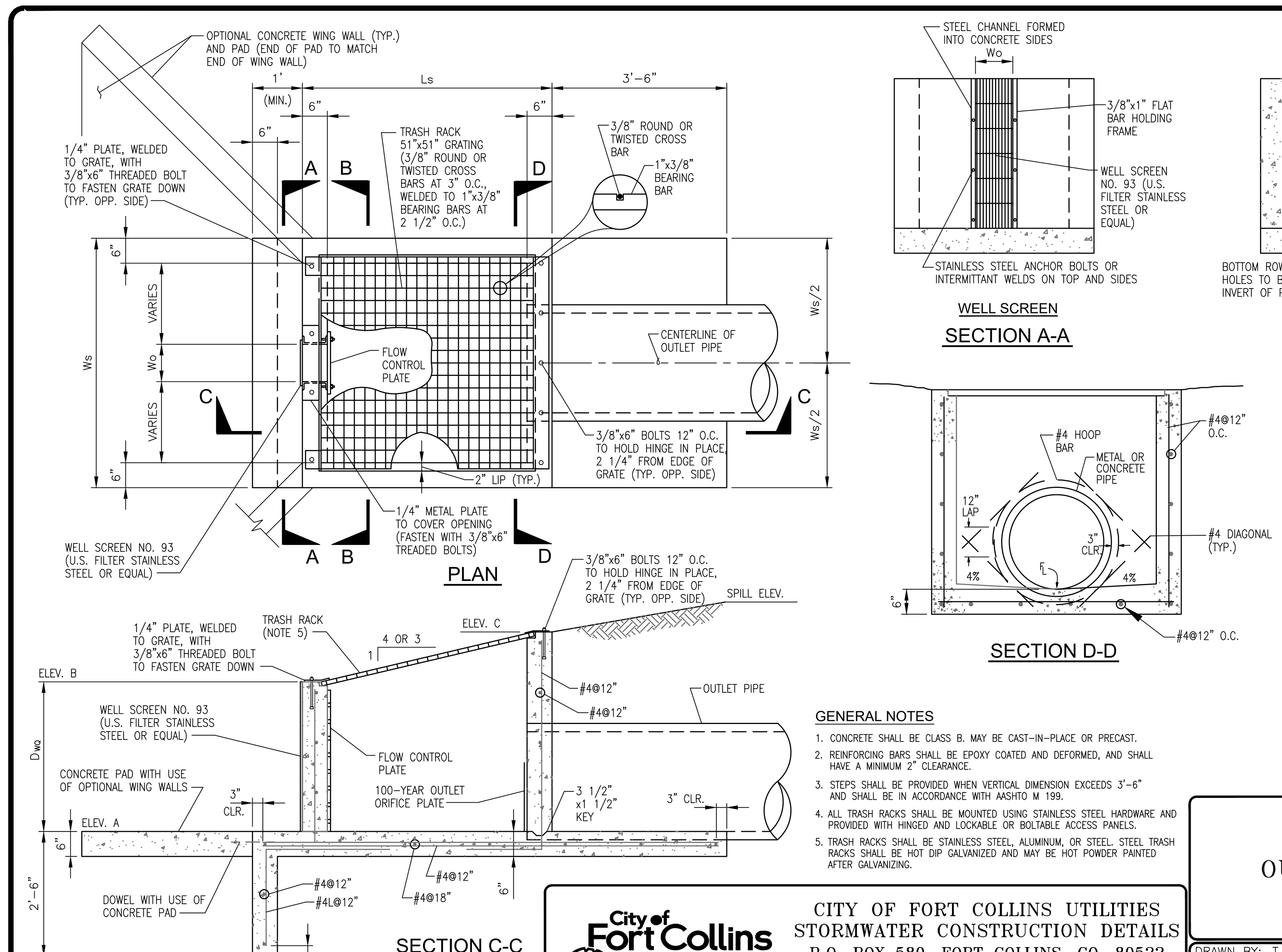


SCREEN SLOT TABLE

	A	B	C	D	E
PIPE SIZE	ROWS OF SLOTS	MAXIMUM SLOT LENGTH	MAXIMUM SLOT WIDTH	APPROX. SLOT SPACING O.C.	MINIMUM OPEN AREA PER FOOT
4"	3 (MIN.) - 6 (MAX.)	1-3/8"	0.032"	0.516"	1.98 SQ. IN.

NOTE:
"SLOTTED HDPE" AND "PERFORATED HDPE" SHALL MEAN THE SAME THING WHEN REFERRING TO UNDERDRAINS IN THIS PLAN SET.

101 / C6.01 — DIMENSIONS FOR SLOTTED HDPE PIPE — NOT TO SCALE



	NORTH POND
ELEV A	5026.75
ELEV B	5027.88
ELEV C	5028.88
SPILL ELEV.	5029.25
D wq (FT)	1.13
LS (FT)	4.00
WS (FT)	4.00
WO (FT)	1.00
WATER QUALITY PLATE	
HOLE DIA (INCH)	1/4
# ROWS	3
# COLUMNS	1

GENERAL NOTES

1. CONCRETE SHALL BE CLASS B. MAY BE CAST–IN–PLACE OR PRECAST.
2. REINFORCING BARS SHALL BE EPOXY COATED AND DEFORMED, AND SHALL HAVE A MINIMUM 2" CLEARANCE.
3. STEPS SHALL BE PROVIDED WHEN VERTICAL DIMENSION EXCEEDS 3'–6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
4. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
5. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER PAINTED AFTER GALVANIZING.

City of Fort Collins — CITY OF FORT COLLINS UTILITIES STORMWATER CONSTRUCTION DETAILS, P.O. BOX 580, FORT COLLINS, CO. 80522, (970) 221–6700

WATER QUALITY OUTLET STRUCTURE DETAILS

DRAWN BY: T. COX
DATE DRAWN: 8/15/05
LAST DATE REVISED: 4/7/11
CAD FILE NAME: D46.dwg
DETAIL D–46

March 19, 2011

CITY OF FORT COLLINS
BIORETENTION SAND MEDIA SPECIFICATION

PART 1 - GENERAL

A. Bioretention Sand Media (BSM) shall be uniformly mixed, uncompacted, free of stones, stumps, roots, or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth or prove a hindrance to the facility's function and maintenance.

B. BSM shall be free of plant or seed material of non-native, invasive species, or weeds.

C. Fully mixed BSM shall be tested prior to installation and meet the following criteria:
1. P-Index of less than 30
2. pH of 5.5-6.5. Should pH fall outside of the acceptable range, it may be modified with lime (to raise) or iron sulfate plus sulfur (to lower). The lime or iron sulfate must be mixed uniformly into the BSM prior to use in the bioretention facility.
3. Cation Exchange Capacity (CEC) greater than 10
4. Phosphorous (Phosphate, P2O5) not to exceed 69 ppm
5. BSM that fails to meet the minimum requirements shall be replaced at the Contractor's expense.

D. BSM shall be delivered fully mixed in a drum mixer. Onsite mixing of piles will not be allowed. Mixing of the BSM to a homogeneous consistency shall be done to the satisfaction of the Owner.

PART 2 - SOIL MATERIALS

A. Sand
1. BSM shall consist of 60-70% sand by volume meeting ASTM C-33.

B. Shredded Paper
1. BSM shall consist of 5-10% shredded paper by volume.
2. Shredded paper shall be loosely packed, approximate bulk density of 50-100 lbs/CY.
3. Shredded paper shall consist of loose leaf paper, not shredded phone books, and shall be thoroughly and mechanically mixed to prevent clumping.

C. Topsoil
1. BSM shall consist of 5-10% topsoil by volume.
2. Topsoil shall be classified as sandy loam, loamy sand, or loam per USDA textural triangle with less than 5% clay material.
3. Onsite, native material shall not be used as topsoil.
4. Textural analysis shall be performed on topsoil, preferably at its source, prior to including topsoil in the mix. Topsoil shall be free of subsoil, debris, weeds, foreign matter, and any other material deleterious to plant health.
5. Topsoil shall have a pH range of 5.5 to 7.5 and moisture content between 25-55%.
6. Contractor shall certify that topsoil meets these specifications.

D. Leaf Compost
1. BSM shall consist of 10-20% leaf compost by volume.
2. Leaf compost shall consist of Class 1 organic leaf compost consisting of aged leaf mulch resulting from biological degradation and transformation of plant-derived materials under controlled conditions designed to promote aerobic decomposition.
3. The material shall be well composted, free of viable weed seeds and contain material of a generally humus nature capable of sustaining growth of vegetation, with no materials toxic to plant growth.
4. Compost shall be provided by a local US Composting Council Seal of Testing Assurance (STA) member. A copy of the provider's most recent independent STA test report shall be submitted to and approved by the Owner prior to delivery of BSM to the project site.
5. Compost material shall also meet the following criteria:
   a. 100 percent of the material shall pass through a 1/2 inch screen
   b. PH of the material shall be between 6.0 and 8.4
   c. Moisture content shall be between 35 and 50 percent
   d. Maturity greater than 80 percent (maturity indicator expressed as percentage of germination/vigor, 80+/80+)
   e. Maturity indicator expressed as Carbon to Nitrogen ration < 12
   f. Maturity indicator expressed as AmmoniaN/NitrateN Ratio <4
   g. Minimum organic matter shall be 40 percent dry weight basis
   h. Soluble salt content shall be no greater than 5500 parts per million or 0-5 mmhos/cm
   i. Phosphorus content shall be no greater than 325 parts per million
   j. Heavy metals (trace) shall not exceed 0.5 parts per million
   k. Chemical contaminants: meet or exceed US EPA Class A standard, 40 CFR 503.13, Tables 1 & 3 levels
   l. Pathogens: meet or exceed US EPA Class A standard, 40 CFR 503.32(a) levels

PART 3 - EXECUTION

A. General
1. Refer to project specifications for excavation requirements.

B. Placement Method
1. BSM material shall be spread evenly in horizontal layers.
2. Thickness of loose material in each layer shall not exceed 9-inches.
3. Compaction of BSM material is not required.

102 / C6.01 — BIORETENTION SAND MEDIA SPECIFICATIONS — NOT TO SCALE

City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED: ____ City Engineer ____ Date
CHECKED BY: ____ Water & Wastewater Utility ____ Date
CHECKED BY: ____ Stormwater Utility ____ Date
CHECKED BY: ____ Parks & Recreation ____ Date
CHECKED BY: ____ Traffic Engineer ____ Date
CHECKED BY: ____ Environmental Planner ____ Date

Revisions: No. — Date:
REVIEW SET — NOT FOR CONSTRUCTION — 10/03/2018

These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

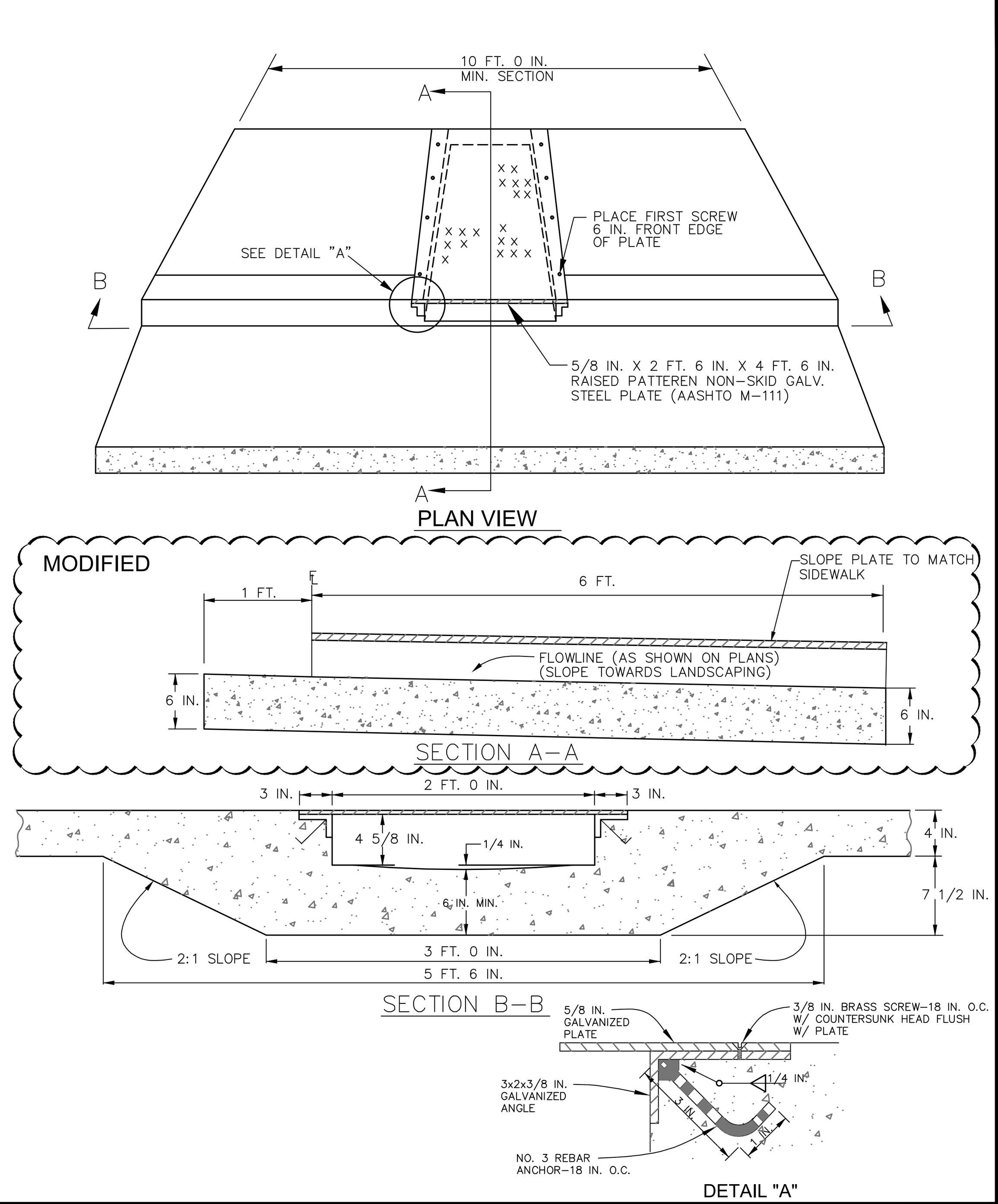
NE | NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

PROJECT: 232–047 | DATE: 10/03/2018
DESIGNED BY: B. MATHISEN | SCALE: 1"=30'
DRAWN BY: B. MATHISEN | REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS

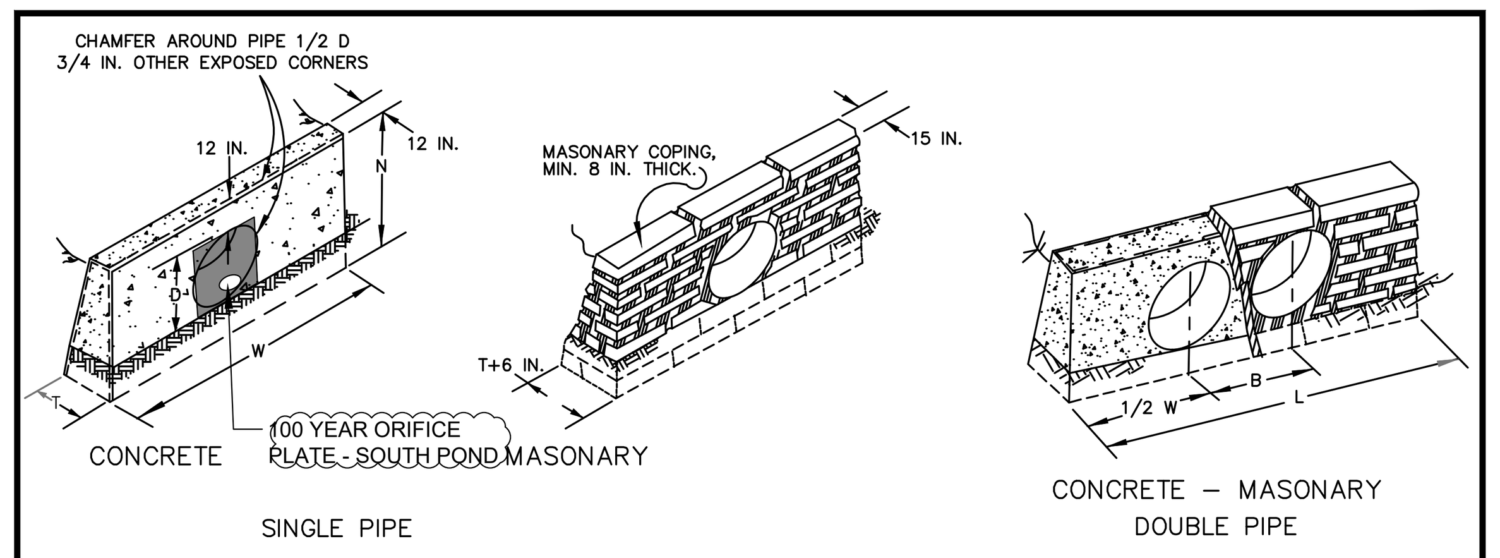
DETAILS

Sheet C6.01

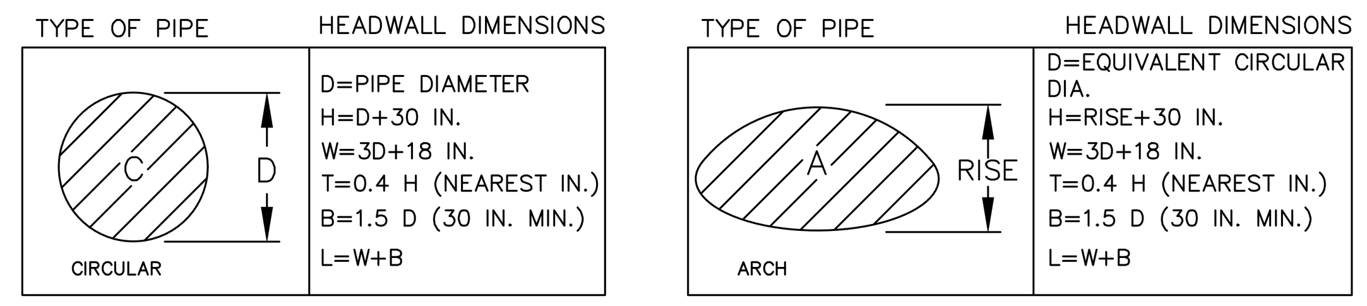


METAL SIDEWALK CULVERT FOR VERT. CURB AND SIDEWALK

City of Fort Collins	CITY OF FORT COLLINS UTILITIES FORT COLLINS, CO. (970) 221-6700	STORMWATER CONSTRUCTION DETAILS	APPROVED: DATE: 12/12/00 DRAWN BY: NBJ	DETAIL D-10



HEADWALL INSTALLATIONS



NOTE: VOLUME OCCUPIED BY PIPE HAS BEEN DEDUCTED.

QUANITIES FOR ONE CONCRETE HEADWALL (CUBIC YARDS)

DIAMETER (AND EQUIVALENT DIAMETER) INCHES (S=SPAN) (R=RISE)

PIPE		12 and 15		18		24		30		36		42		48	
TYPE	MAT'L	SGL.	DBL.	SGL.	DBL.	SGL.	DBL.	SGL.	DBL.	SGL.	DBL.	SGL.	DBL.	SGL.	DBL.
C	RCP	0.8	1.2	1.0	1.3	1.5	2.0	2.0	2.7	2.8	3.6	3.6	4.6	4.6	6.0
C	CSP	0.9	1.2	1.1	1.4	1.6	2.1	2.2	3.0	3.0	4.0	3.9	5.0	5.0	6.8
A	RCP	–	–	0.9	1.2	1.3	1.8	1.7	2.3	3.1	3.1	2.9	3.9	3.1	4.4
A	CSP	–	–	0.9	1.3	1.4	1.9	1.8	2.4	2.4	3.4	3.2	4.4	3.4	5.0
A		N/A		S 22	R 13	S 29	R 18	S 36	R 22	S 43	R 27	S 50	R 31	S 58	R 36

QUANITIES FOR ONE MASONRY HEADWALL (CUBIC YARDS)

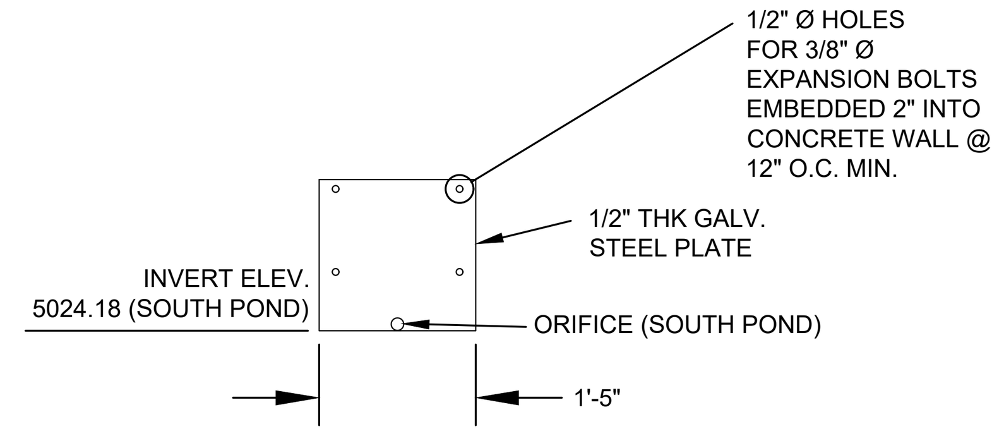
TYPE	MAT'L	12/15 SGL.	12/15 DBL.	18 SGL.	18 DBL.	24 SGL.	24 DBL.	30 SGL.	30 DBL.	36 SGL.	36 DBL.	42 SGL.	42 DBL.	48 SGL.	48 DBL.
C	RCP	1.1	1.6	1.3	1.7	1.9	2.5	2.6	3.4	3.5	4.5	4.4	6.1	5.6	7.2
C	CSP	1.1	1.6	1.3	1.4	2.0	2.7	2.8	3.7	3.8	5.0	4.8	6.8	6.1	8.2
A	RCP	–	–	1.4	1.9	2.1	2.8	2.9	3.9	3.9	5.3	5.0	7.2	6.4	8.8
A	CSP	–	–	1.4	1.9	2.1	2.9	3.0	4.1	4.0	5.5	5.2	7.6	6.6	9.2
A		N/A		S 22	R 13	S 29	R 18	S 36	R 22	S 43	R 27	S 50	R 31	S 58	R 36

GENERAL NOTES:

1. REVISED CDOH-M-601-12

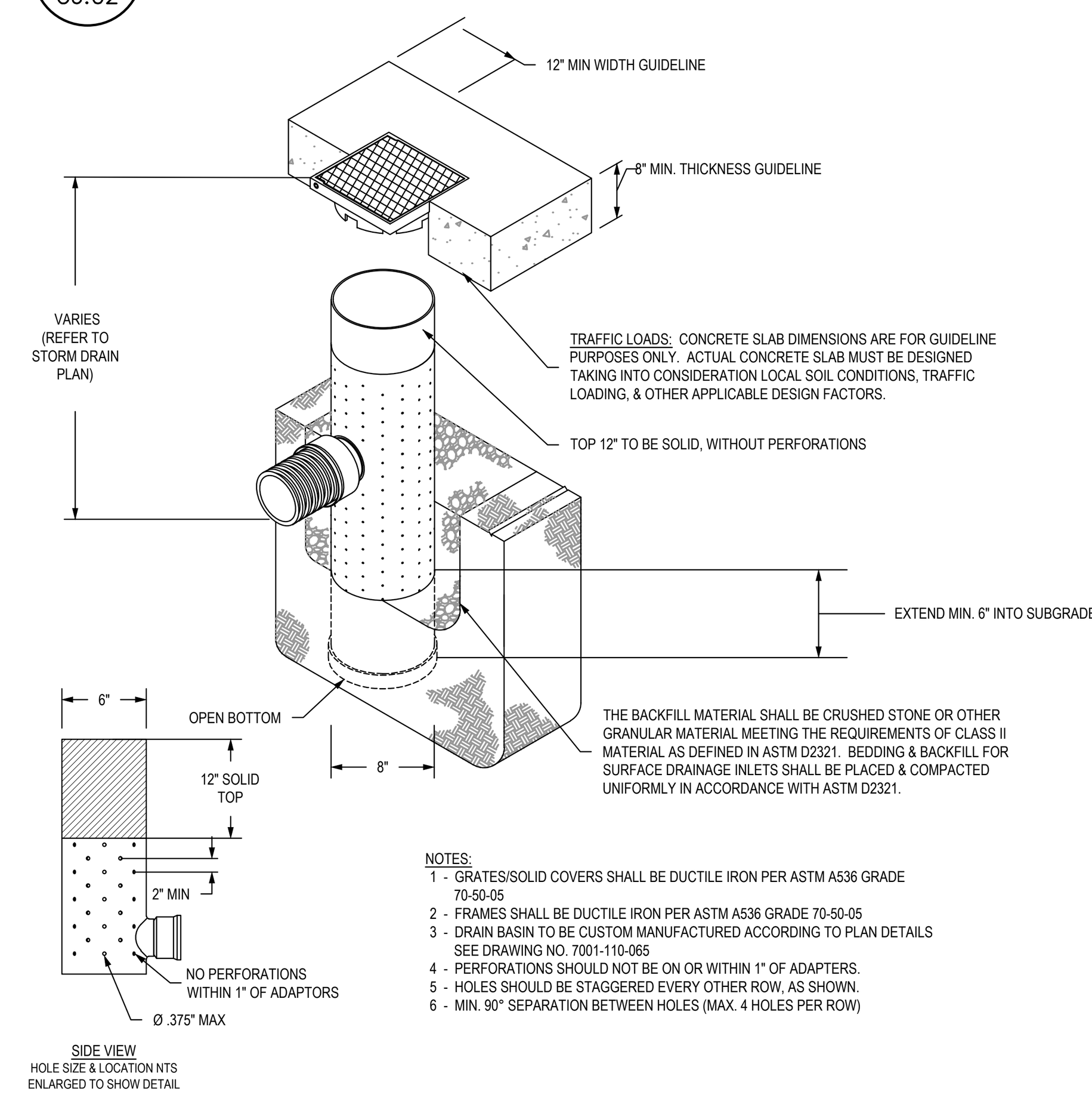
HEADWALLS FOR PIPES (12 IN. TO 48 IN. DIM.)

City of Fort Collins	CITY OF FORT COLLINS UTILITIES FORT COLLINS, CO. (970) 221-6700	STORMWATER CONSTRUCTION DETAILS	APPROVED: DATE: 01/18/01 DRAWN BY: NBJ	DETAIL D-17

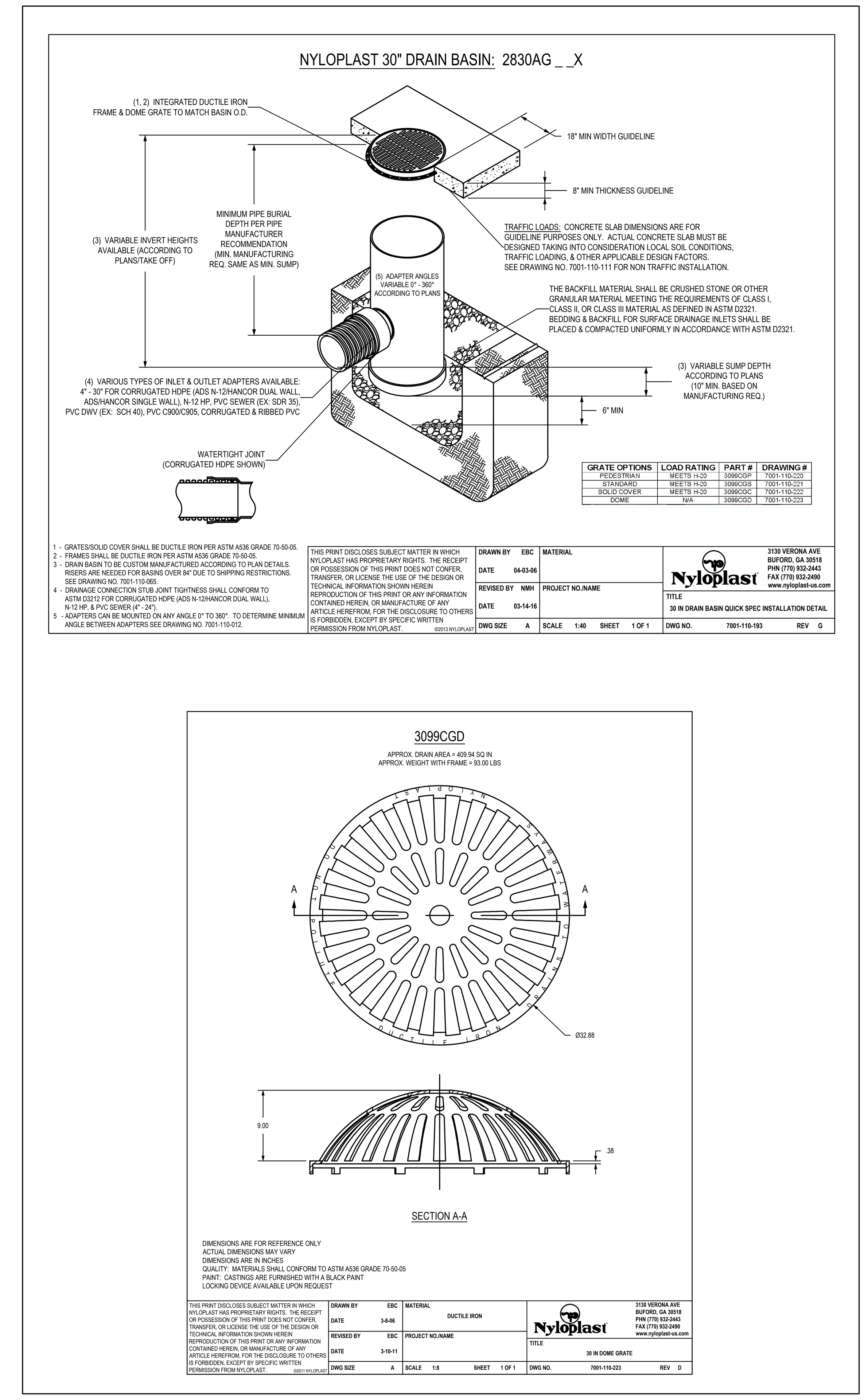


100 YEAR ORIFICE PLATE SUMMARY			
POND	INV. ELEV.	CIRCULAR ORIFICE DIAMETER (IN)	RECTANGULAR ORIFICE DIMENSIONS (IN)
SOUTH POND	5024.18	8"	H=6" W=8"

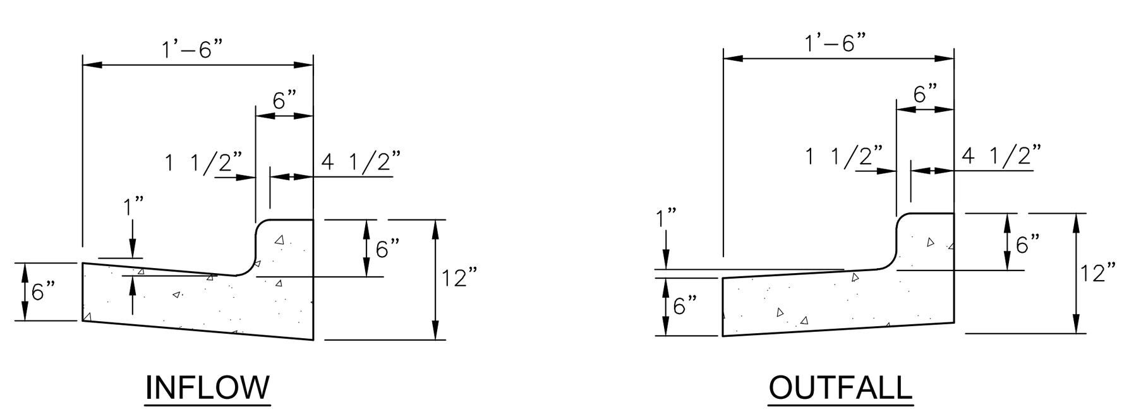
204 / C6.02 — 100-YEAR ORIFICE PLATE — NOT TO SCALE



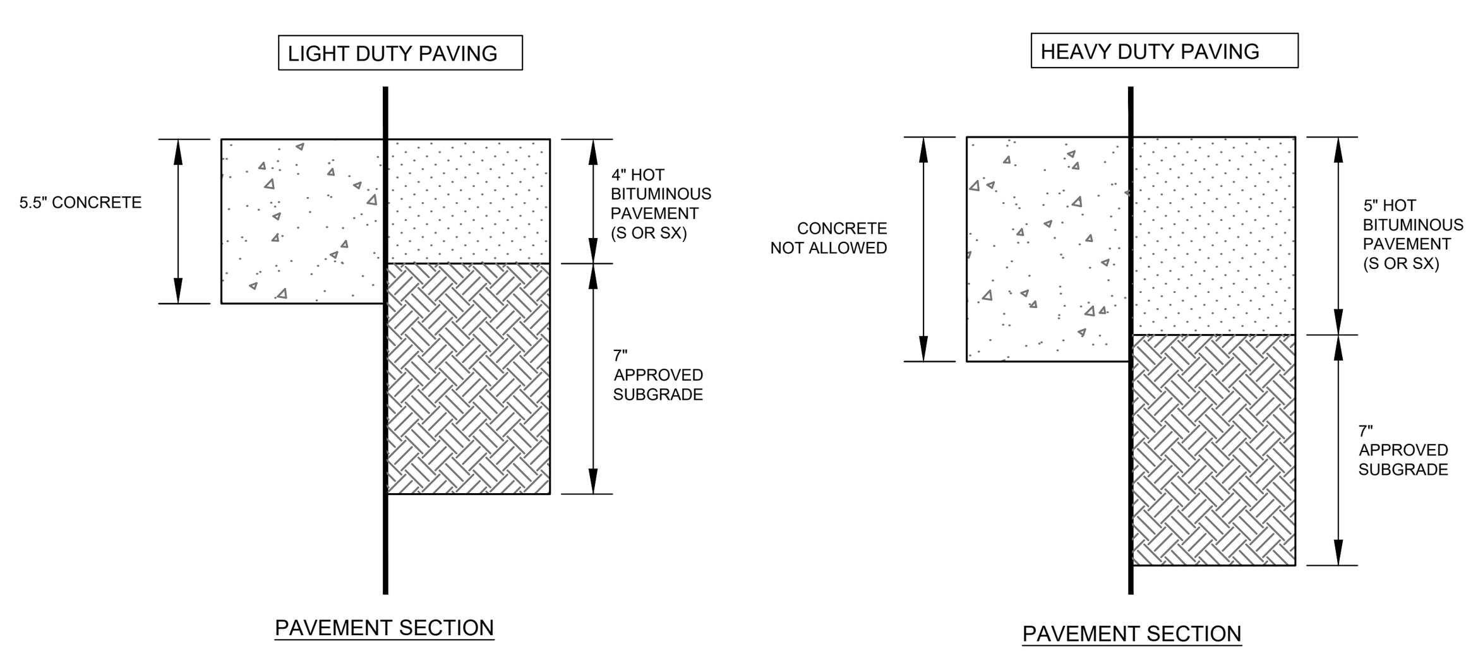
205 / C6.02 — MONITORING WELL — NOT TO SCALE



206 / C6.02 — RG1 OVERFLOW C2 AND RG2 OVERFLOW E2 — NOT TO SCALE



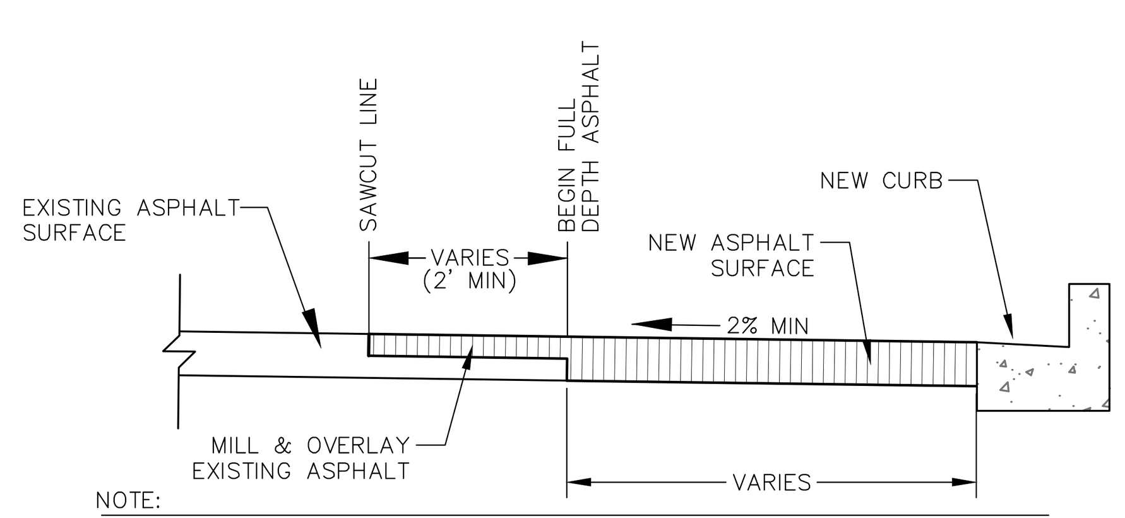
200 / C6.02 — PRIVATE VERTICAL CURB & GUTTER — NOT TO SCALE



NOTES:

1. ALL SITE GRADING, SUBGRADE PREPARATION AND PAVING SHALL FOLLOW THE GEOTECHNICAL RECOMMENDATIONS CONTAINED IN THE REPORT BY EARTH ENGINEERING CONSULTANTS, LLC., TITLED "SUBSURFACE EXPLORATION REPORT SUNSHINE HOUSE NO. 213 - SOUTH SHIELDS STREET SSOUTHEAST CORNER OF SHIELDS STREET AND LAKE STREET FORT COLLINS, COLORADO" (EEC PROJECT:1182044), DATED JUNE 18, 2018.
2. NOTE THAT THESE PAVING SECTIONS ARE TO BE USED ONLY FOR AREAS OUTSIDE OF PUBLIC RIGHT-OF-WAY. PAVING SECTIONS WITHIN PUBLIC RIGHT-OF-WAY WILL BE REQUIRED BY THE CITY OF FORT COLLINS TO BE PER AN APPROVED PAVEMENT DESIGN REPORT.
3. SEE CDOT STANDARD M-412-1 FOR TYPICAL CONCRETE PAVING JOINT LAYOUT.
4. CONCRETE PARKING LOT SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 330R-08.

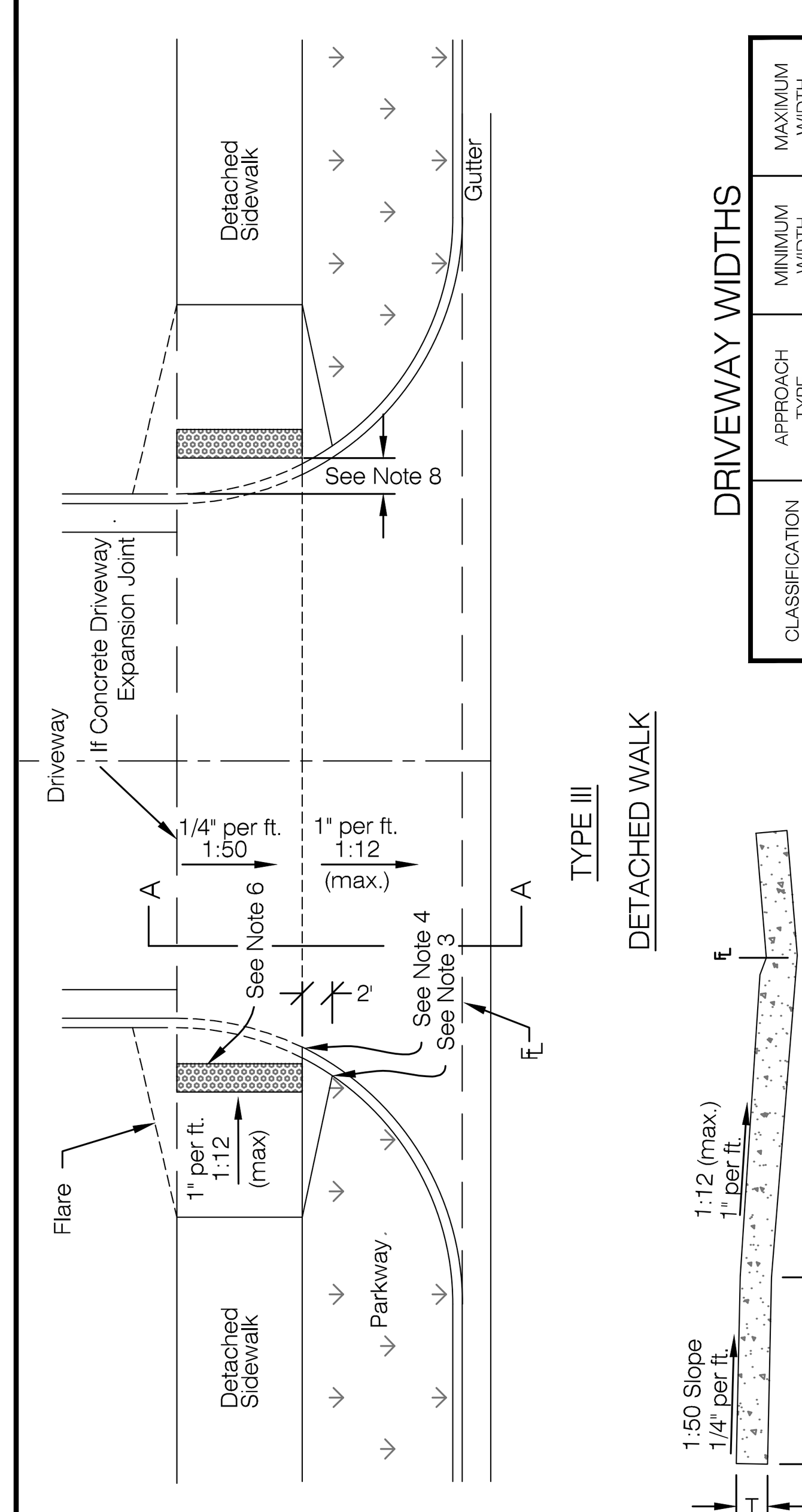
203 / C6.02 — PAVING SECTIONS (PRIVATE AREAS OUTSIDE ROW) — NOT TO SCALE



NOTE:

1. THE EXISTING ASPHALT SURFACE SHALL BE SAW-CUT AND REMOVED FROM THE EXISTING AGGREGATE BASE TO A LINE FOUR FEET FROM AND PARALLEL TO THE EDGE OF EXISTING PAVEMENT.
2. THE ASPHALT SURFACE SHALL BE SAWED TO FORM A PERPENDICULAR CLEAN JOINT AND A COATING OF BITUMINOUS MATERIALS (PRIME COAT) SHALL BE APPLIED TO THE JOINT PRIOR TO THE PROPOSED SURFACING OPERATION.

201 / C6.02 — ASPHALT PAVEMENT JOINT — NOT TO SCALE



DRIVEWAY WIDTHS

CLASSIFICATION	APPROACH TYPE	MINIMUM WIDTH	MAXIMUM WIDTH
RESIDENTIAL:			
Single Family ●	I or II	12'	24' *
Multi Family ●	I, II, III, or IV	24'	36' * *
Commercial	I, II, III, or IV	24'	36' * *
Industrial	I, II, III, or IV	24'	36'

● High volume driveways (Type III or IV) allowed for 350 or greater trip ends/day.
* 30' maximum for 3 car garages.
* * No single opening shall exceed 36'. Wider driveways shall be divided w/a median not less than 6' wide.

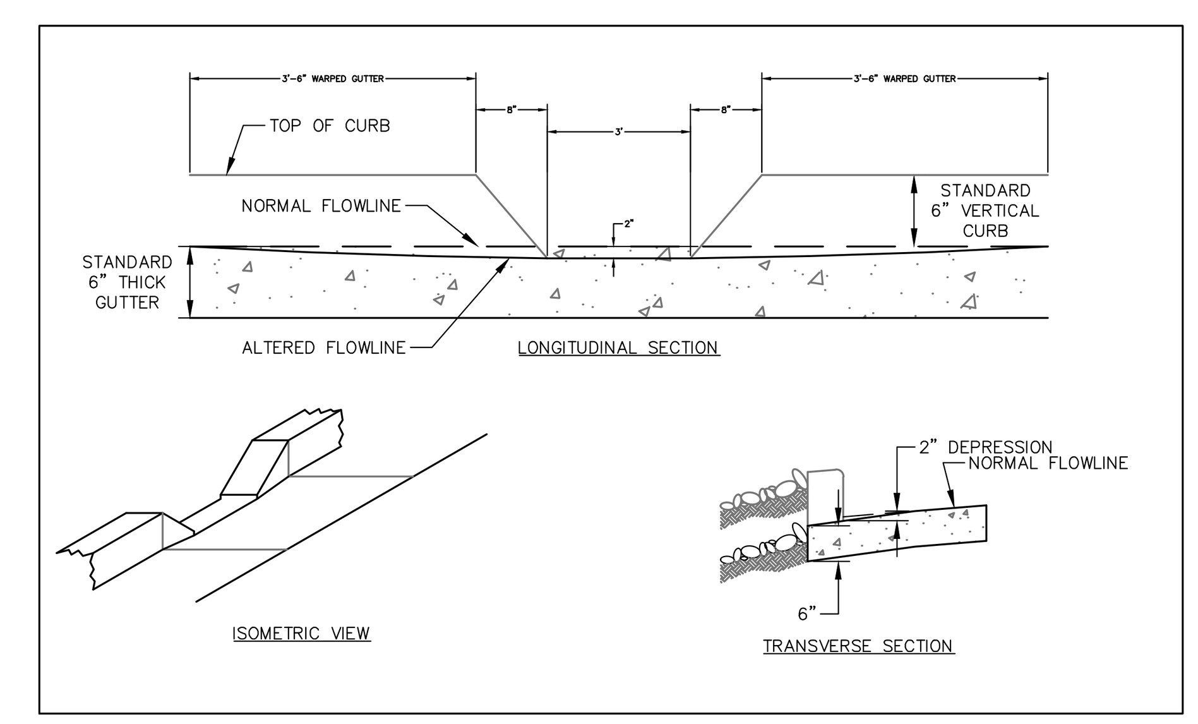
NOTES:

1. 6' wide pan for residential streets.
2. All intersections to have access ramps.
3. Standard Curb and Gutter Section, See Standard Drawing 701
4. 0" Curb Height, See Section A-A
5. All of these pedestrian improvements shall be in ROW or a pedestrian or public access easement.
6. Detectable Warning to extend the full width of the ramp and be 2'-0" in the direction of travel. Maximum slope in the direction of travel shall be no more than 5.0 percent (1:20). Material to be approved by local engineer
7. T = 6" for residential and 8" for commercial.
8. Distance from back of curb to the beginning of Detectable Warning cannot be greater than 5'-0"

NOT TO SCALE

STANDARD DRIVEWAY APPROACH (HIGH VOLUME DRIVE TYPE III)

LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 1 DATE: 02/17/15	DRAWING 707.1



207 / C6.02 — CURB CUT — NOT TO SCALE

City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED: ____ City Engineer ____ Date
CHECKED BY: ____ Water & Wastewater Utility ____ Date
CHECKED BY: ____ Stormwater Utility ____ Date
CHECKED BY: ____ Parks & Recreation ____ Date
CHECKED BY: ____ Traffic Engineer ____ Date
CHECKED BY: ____ Environmental Planner ____ Date

Revisions: No. / Date:

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

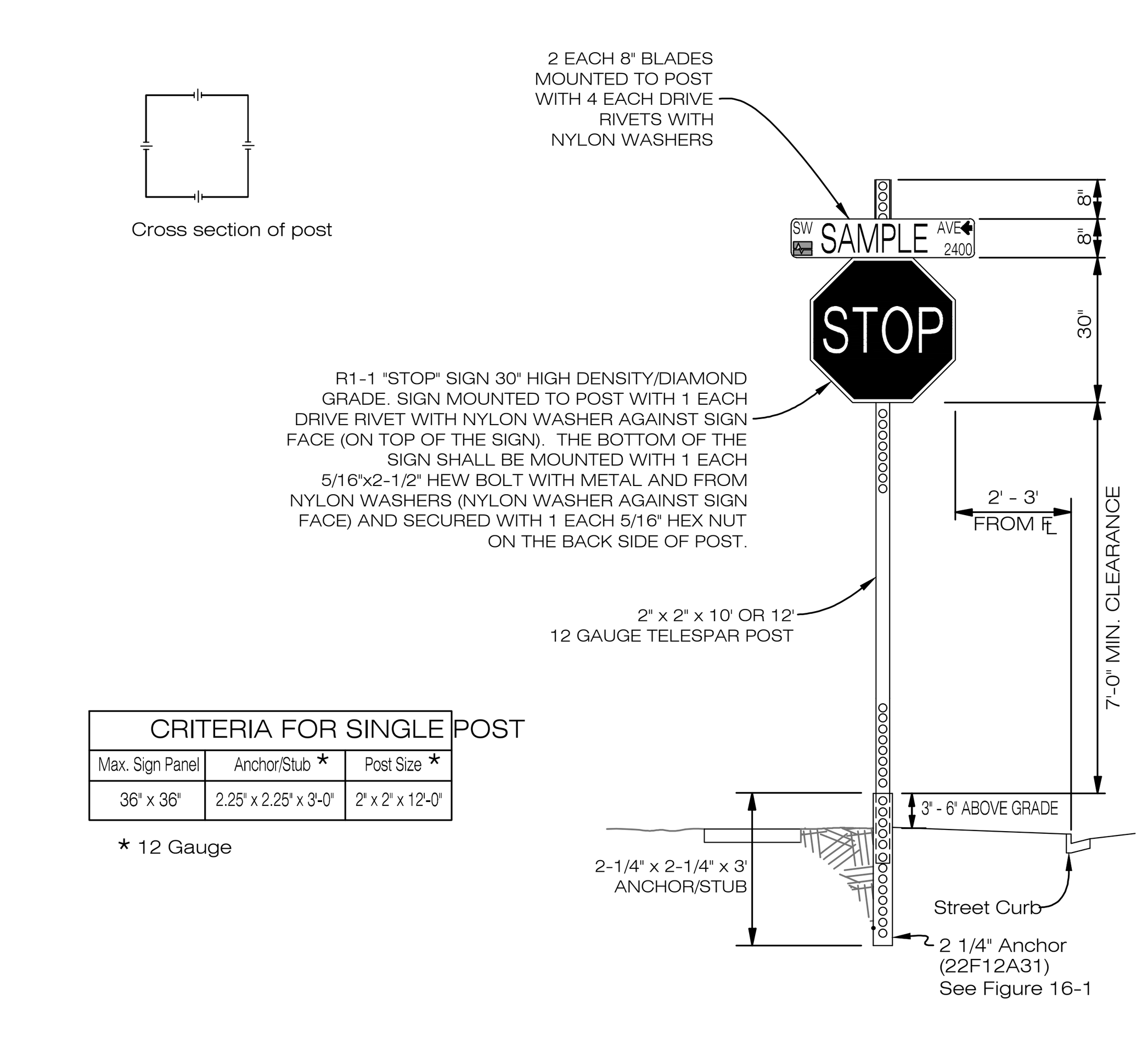
NORTHERN ENGINEERING
FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

DATE: 10/03/2018
SCALE: 1"=30'
REVIEWED BY: C. SNOWDON
PROJECT: 232-047
DESIGNED BY: B. MATHISEN
DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS

DETAILS

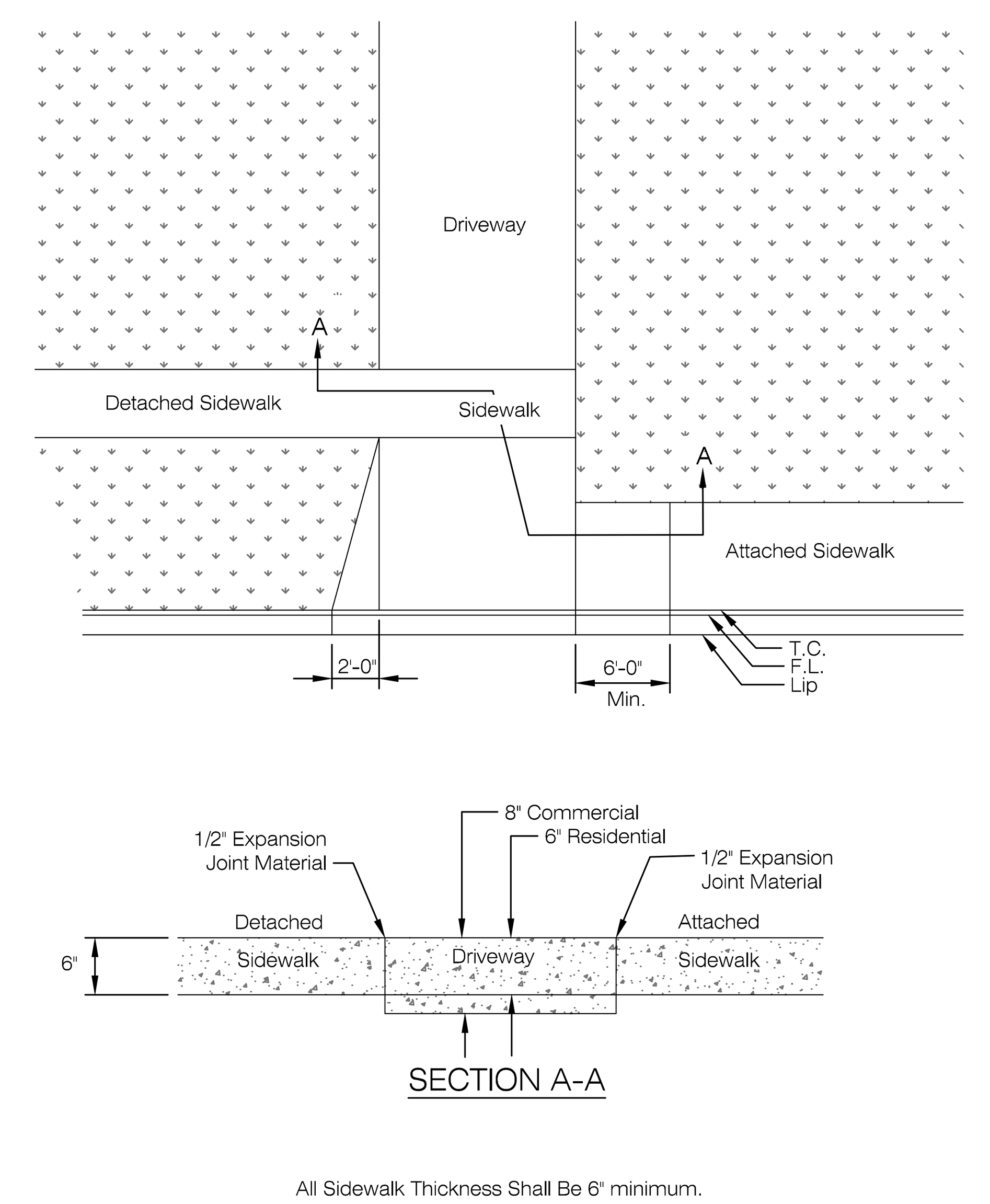
Sheet C6.02



NOTES:

1. Attach the sign panels tightly to the post and use oversized washers to keep the sign from breaking loose from the post when hit by a vehicle
2. Sign panels should be mounted a minimum of 7 feet above the pavement or ground.
3. Signs larger than 36 inches in length or width require wind bracing and special post design.
4. Anchor Stub and post are square steel tube (perforated).
5. All "No Parking" signs shall be installed at 45° from Flow Line.

SIGN POST			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 1 DATE: 04/01/07	DRAWING 1401



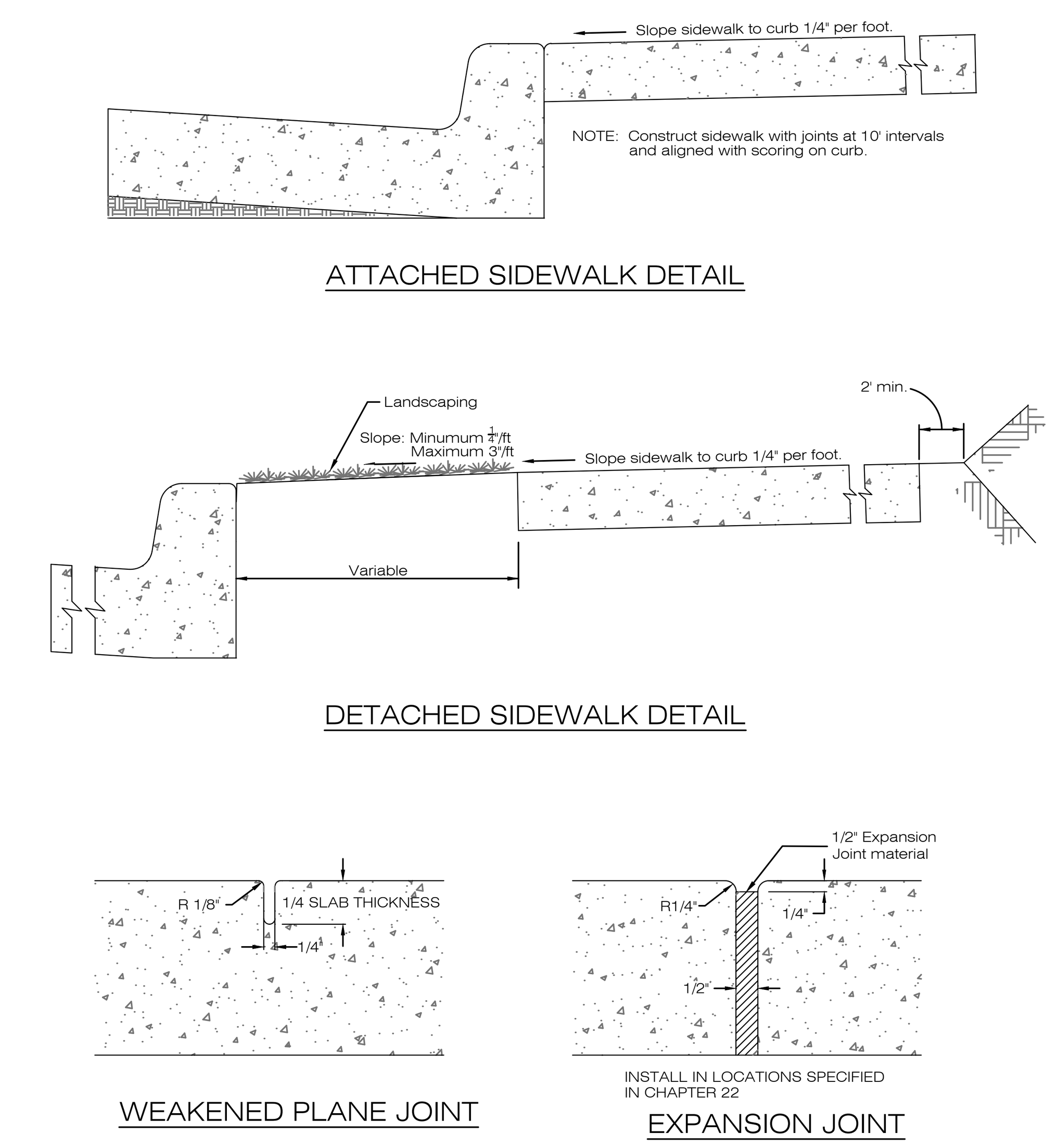
All Sidewalk Thickness Shall Be 6" minimum.

NOTE:

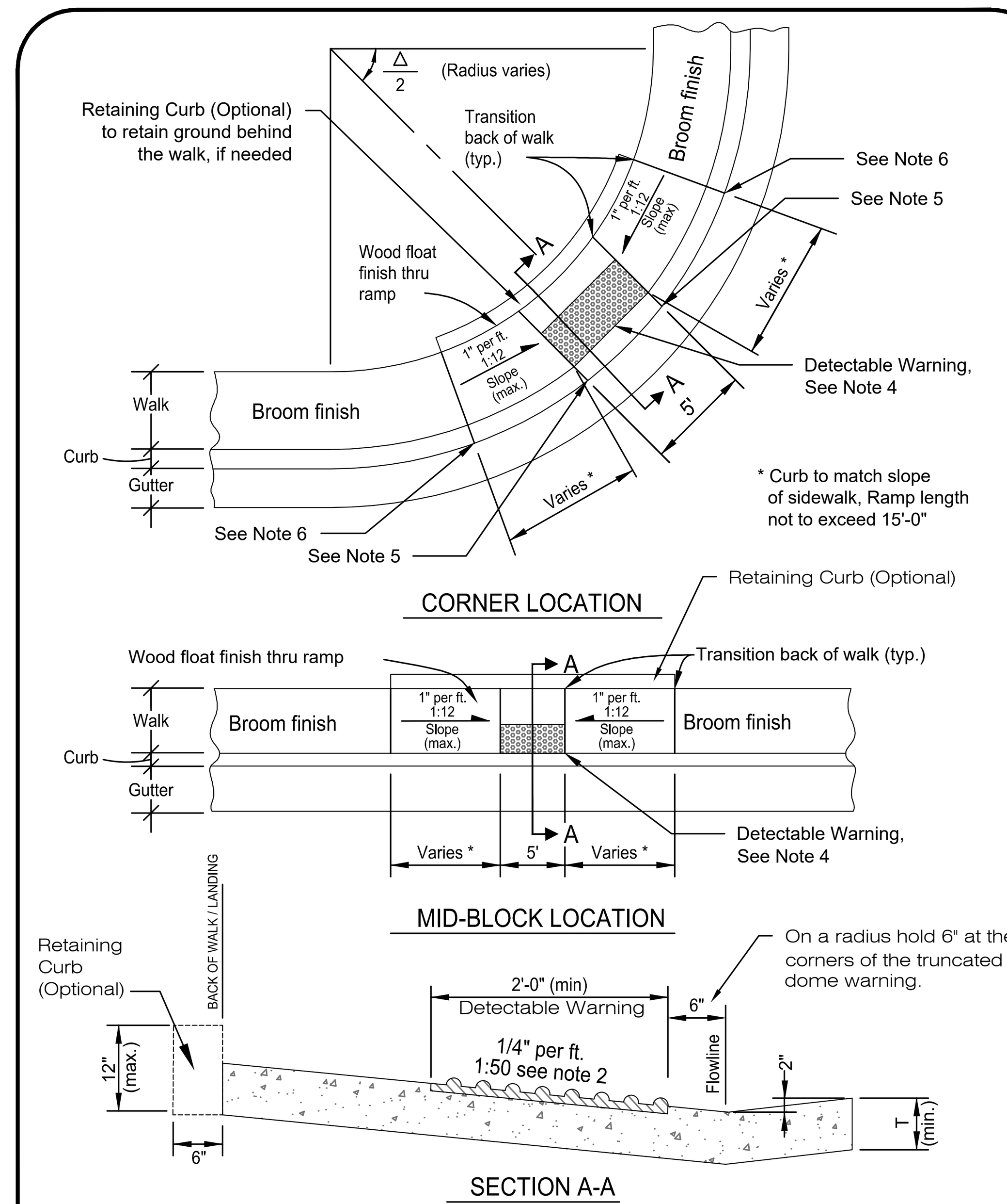
1. Sidewalk grade shall remain consistent across driveway
2. For driveway design requirements, see CONST. DWG. Series 706 & 707
3. This detail applies to Residential & Commercial driveways.

NOT TO SCALE

STANDARD SIDEWALK			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 4 DATE: 02/17/15	DRAWING 1601



SIDEWALK DETAIL			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 2 DATE: 04/01/07	DRAWING 1602

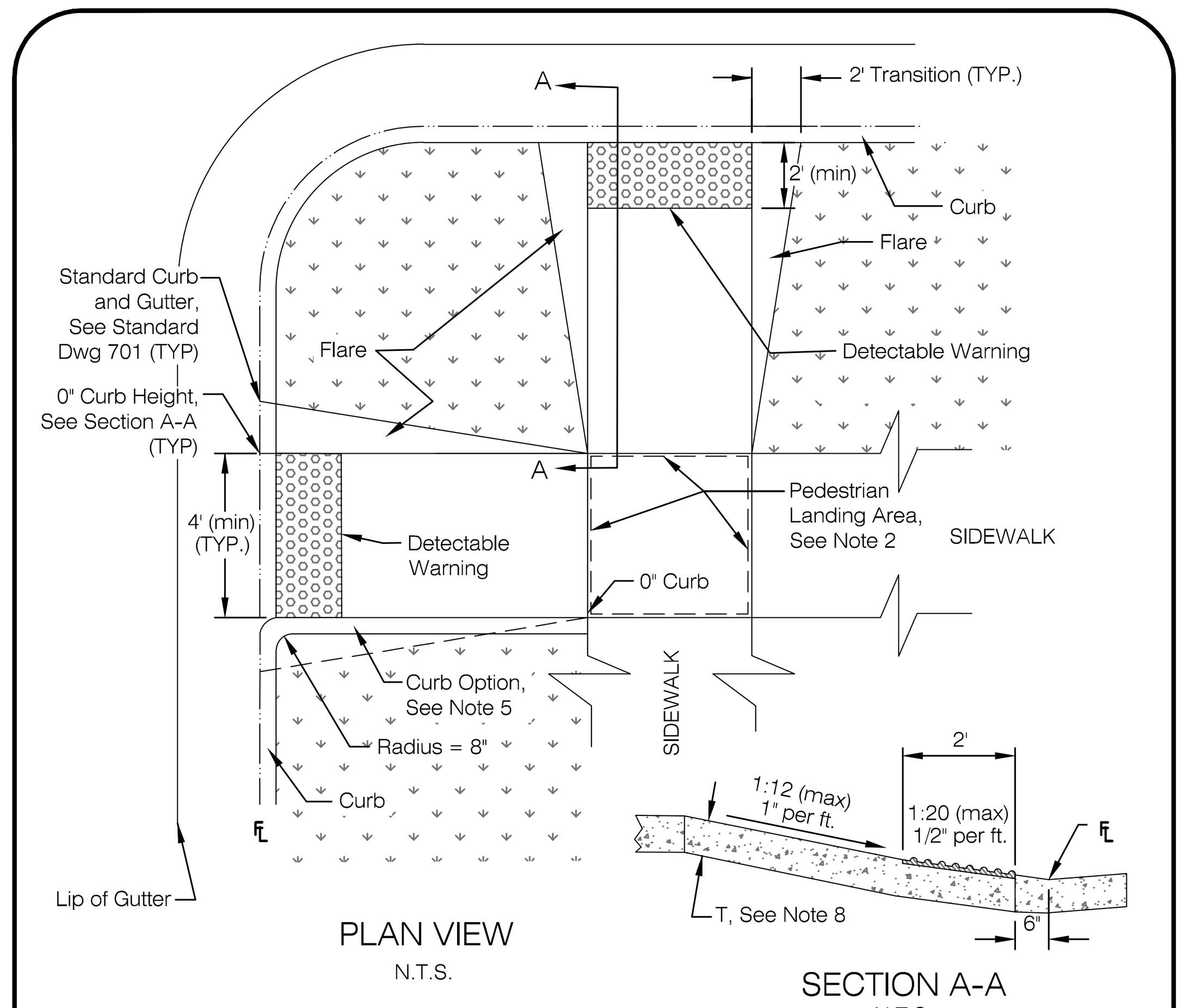


NOTES:

1. T = Concrete thickness, 6" minimum for entire ramp area.
2. 1:50 Max unless a landing behind ramp (then ramp can be 1:12 with 1:20 on the detectable warning).
3. See **CONST. DWG. 1606(a) and 1607** for Fort Collins.
4. Detectable Warning to extend the full width of the ramp. Material to be approved by Local Engineer.
5. 0" Curb height, See Section A-A.
6. Standard Curb and Gutter Section , See Standard Drawing 701.

NOT TO SCALE

ACCESS RAMP DETAILS			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 2 DATE: 02/17/15	DRAWING 1603



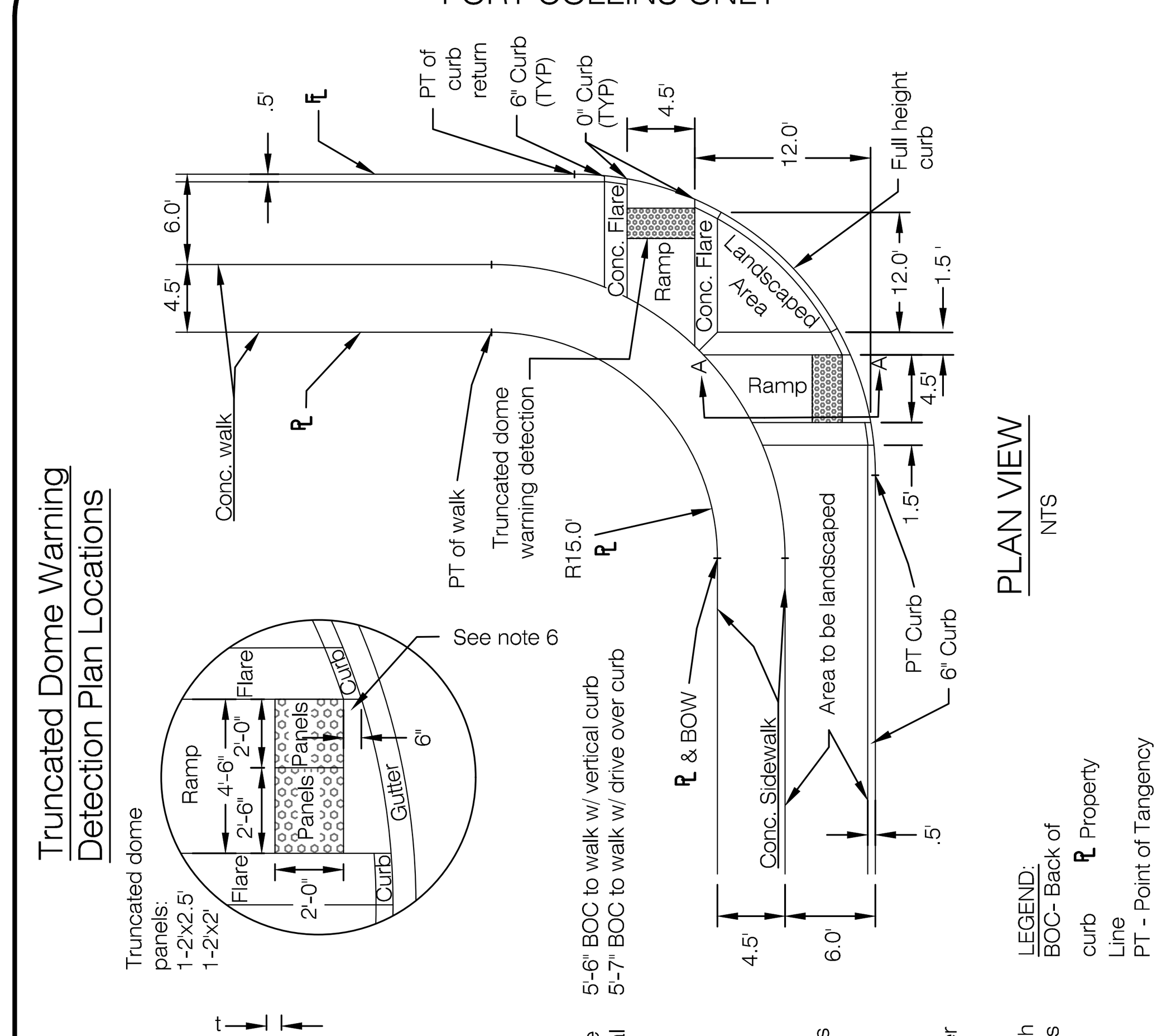
NOTES:

1. No joints are allowed in the flowline. Six inch wide curb or "dummy joint" may be tooled no closer than 6 inches from flow line as shown.
2. Pedestrian landing area required 4 ft length x 4 ft width, max slope in any direction is 1:50 or ¼" per foot.
3. Joint pattern to be according to intersection gutter detail or as determined by the local entity.
4. Wood float finish is required over the sloped surface of ramp and flares.
5. A 6" wide curb option may be poured along side of the ramp as shown if required. If curb is used it shall match style of adjacent curb and gutter.
6. Minimum ramp width shall be four feet, or the same as the widest adjacent sidewalk, whichever is greater, up to a maximum width of 8 feet.
7. Detectable warning is to extend full width of the ramp and be a minimum of 2.0' in the direction of travel. Material to be approved by local engineer
8. T = Concrete thickness, 6" minimum for entire ramp area.

NOT TO SCALE

DIRECTIONAL ACCESS RAMP DETAIL & DETACHED SIDEWALK			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 2 DATE: 02/17/15	DRAWING 1606

FORT COLLINS ONLY



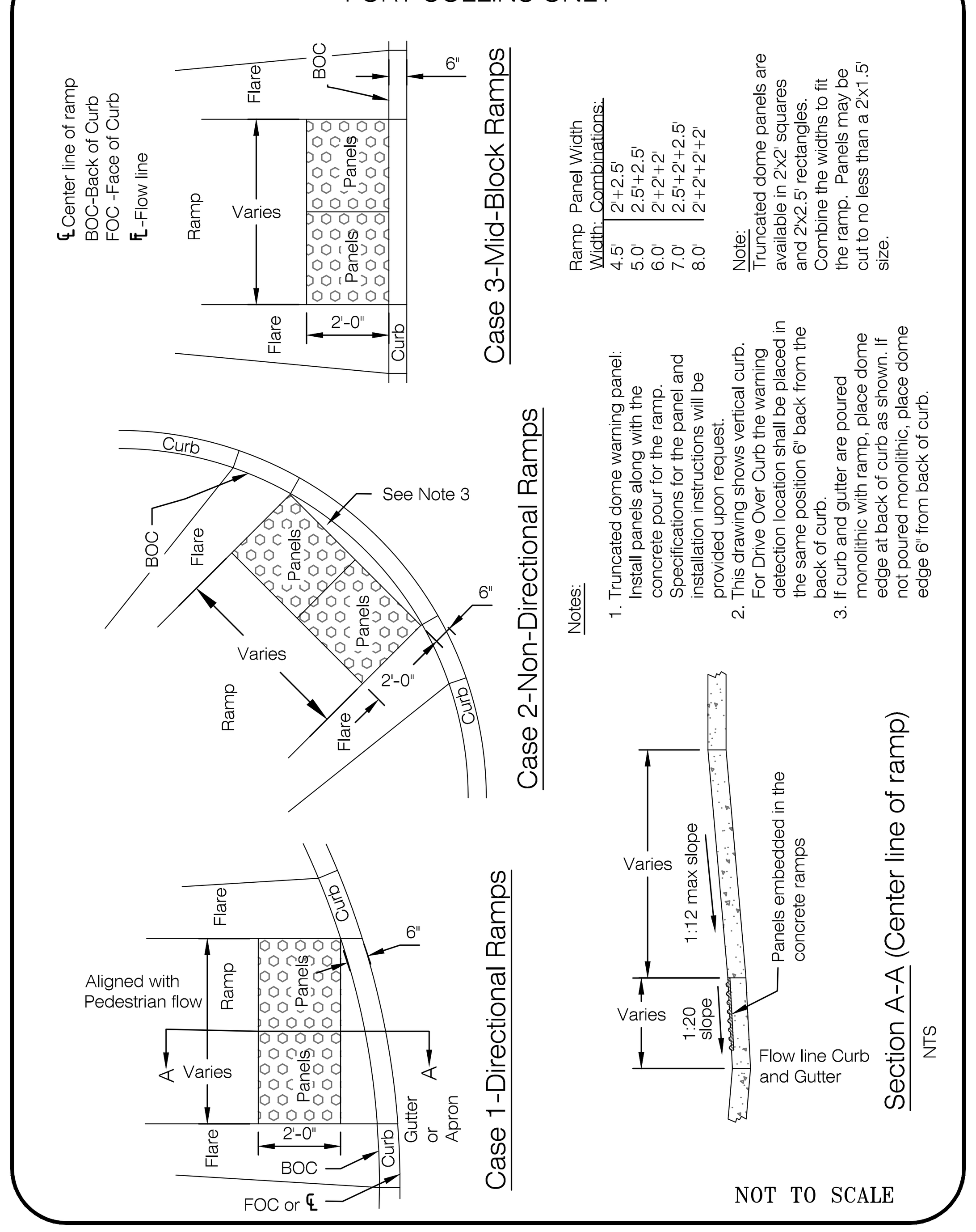
Notes:

1. Set ramp slopes using the center of the ramp.
2. Truncated dome warning panel: Install panels along with the concrete pour for the ramp. Specifications for the panel material will be provided upon request.
3. Each ramp shall align perpendicular to the street in which the ramp is provided to cross.
4. Refer to standard drawing 1606 in the Larimer County urban area street standards for other necessary criteria needed to construct these ramps that is not specified on this drawing.
5. Construct the ramps and walk so the corner area all drains to the street.
6. If curb and gutter are poured monolithic with ramp, place dome edge at back of curb as shown. If not poured monolithic, place dome edge 6" from back of curb.

NOT TO SCALE

RESIDENTIAL LOCAL STREET ACCESS RAMPS			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 3 DATE: 02/17/15	DRAWING 1606a

FORT COLLINS ONLY



Notes:

1. Truncated dome warning panel: Install panels along with the concrete pour for the ramp. Specifications for the panel and installation instructions will be provided upon request.
2. For Drive Over Curb the warning detection location shall be placed in the same position 6" back from the back of curb.
3. If curb and gutter are poured monolithic with ramp, place dome edge at back of curb as shown. If not poured monolithic, place dome edge 6" from back of curb.

NOT TO SCALE

TRUNCATED DOME WARNING FOR ACCESS RAMPS			
LARIMER COUNTY URBAN AREA STREET STANDARDS	CONSTRUCTION DRAWINGS	REVISION NO: 3 DATE: 02/17/15	DRAWING 1607

City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED:	City Engineer	Date
CHECKED BY:	Water & Wastewater Utility	Date
CHECKED BY:	Stormwater Utility	Date
CHECKED BY:	Parks & Recreation	Date
CHECKED BY:	Traffic Engineer	Date
CHECKED BY:	Environmental Planner	Date

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

NORTHERN ENGINEERING

FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

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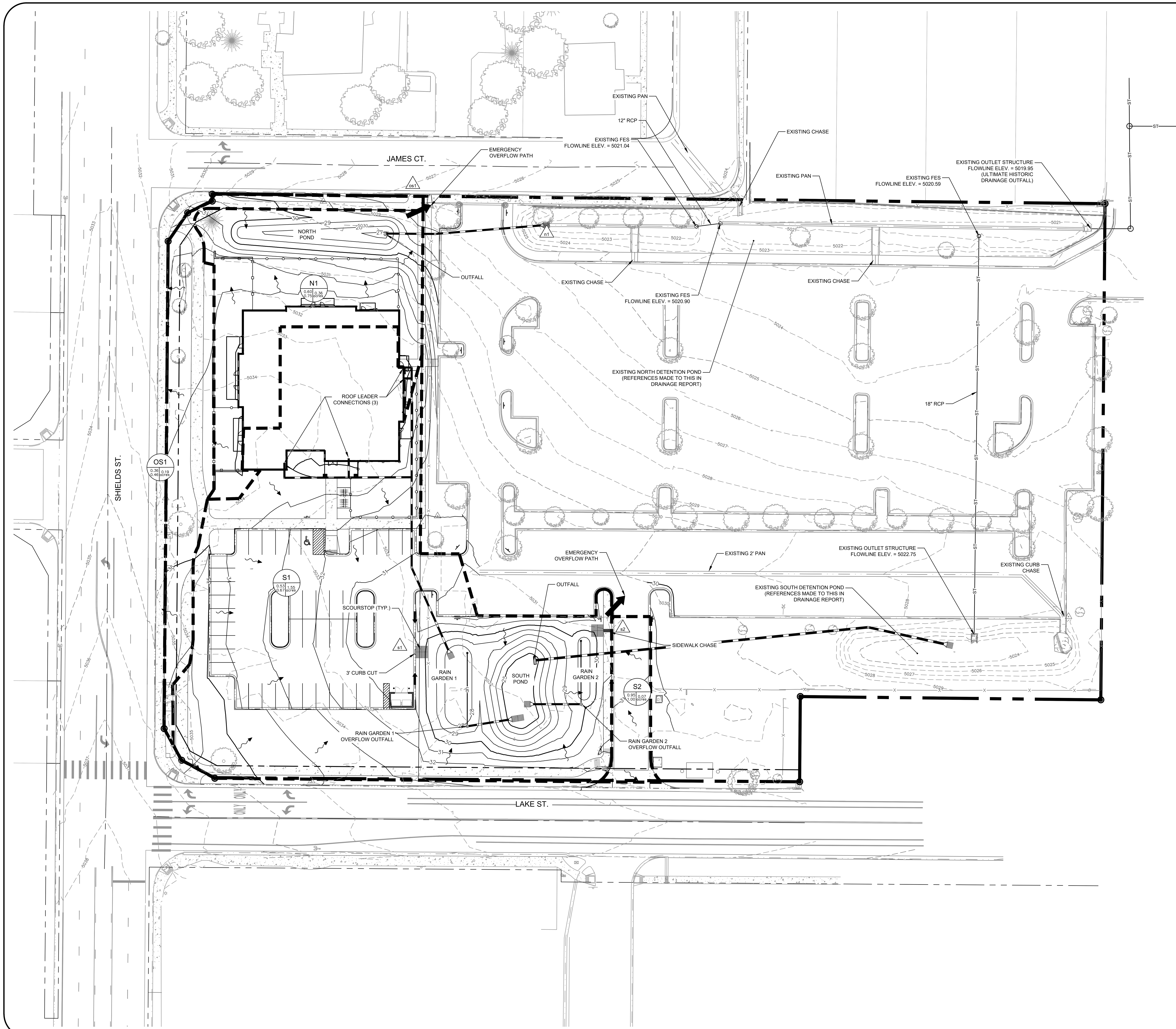
PROJECT: 232-047
DATE: 10/03/2018
DESIGNED BY: B. MATHISEN
SCALE: 1"=30'
DRAWN BY: B. MATHISEN
REVIEWED BY: C. SNOWDON

NEC LAKE & SHIELDS
DETAILS

Sheet C6.03
14 of 15



GRAPHIC SCALE:

NORTH

30 0 30 60 90

(IN FEET)
1 INCH = 30 FEET

LEGEND:

PROPERTY BOUNDARY
EXISTING MAJOR CONTOUR — 5015
PROPOSED MAJOR CONTOUR — 93
PROPOSED STORM SEWER
EXISTING STORM SEWER — ST
PROPOSED STORM INLET
PROPOSED CURB & GUTTER
EXISTING CURB & GUTTER
DRAINAGE BASIN ID — A2
DRAINAGE BASIN AREA
DRAINAGE BASIN MINOR/MAJOR COEFF.
a3
BASIN DELINEATION
PROPOSED OVERLAND FLOW
PROPOSED DIRECT FLOW

NOTES:

1. REFER TO "FINAL DRAINAGE REPORT FOR NEC LAKE & SHIELDS" PREPARED BY NORTHERN ENGINEERING ON 10/03/2018 FOR ADDITIONAL INFORMATION.

RUNOFF SUMMARY:

BASIN ID	TOTAL AREA (acres)	C2	C100	Q2 (cfs)	Q100 (cfs)
N1	0.361	0.60	0.75	0.60	2.70
S1	1.546	0.53	0.67	1.86	8.83
S2	0.067	0.95	1.00	0.18	0.66
OS1	0.194	0.36	0.46	0.20	0.88

LID SUMMARY:

Design Point	Basin ID	Basin Impervious Area (sq. ft.)	Treatment Type	LID System	Area Treated by LID System (sq. ft.)	Percent of Site Treated by LID System
n1	N1	8875	Standard WQ	No	N/A	0%
s1	S1	32166	Rain Garden	Yes	34208	74%
s2	S2	2906	Rain Garden	Yes	2906	6%
	OS1	2272	Grass Buffer	No	N/A	0%
	Total	46219			37114	80%

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City of Fort Collins, Colorado
UTILITY PLAN APPROVAL

APPROVED: ____ City Engineer ____ Date
CHECKED BY: ____ Water & Wastewater Utility ____ Date
CHECKED BY: ____ Stormwater Utility ____ Date
CHECKED BY: ____ Parks & Recreation ____ Date
CHECKED BY: ____ Traffic Engineer ____ Date
CHECKED BY: ____ Environmental Planner ____ Date

No. | Revisions: | By: | Date:

REVIEW SET
NOT FOR CONSTRUCTION
10/03/2018

These drawings are instruments of service provided by Northern Engineering Services, Inc. and are not to be used for any type of construction unless signed and sealed by a Professional Engineer in the employ of Northern Engineering Services, Inc.

NORTHERN ENGINEERING

FORT COLLINS: 301 North Howes Street, Suite 100, 80521
GREELEY: 820 8th Street, 80631
970.221.4158
northernengineering.com

DATE: 10/03/2018
SCALE: 1"=30'
REVIEWED BY: C. SNOWDON
PROJECT: 232-047
DESIGNED BY: B. MATHISEN
DRAWN BY: B. MATHISEN

NEC LAKE & SHIELDS
DRAINAGE EXHIBIT

Sheet
C7.00

TB GROUP
landscape architecture | planning | illustration

August 22, 2018

Administrative Hearing Officer
c/o City of Fort Collins
Current Planning Department
281 North College Ave.
Fort Collins, CO 80524

Re: NEC Lake & Shields

Please accept this request for a Modification of Standards to **Section 4.10(E)(2)(b)** of the Land Use Code.

Background

This is a request to construct a 10,920 square foot day care center on four lots that formerly contained single family homes. The lots will be consolidated into one lot with the Plat. The building and associated play yards will be located in the middle of the site, with a parking lot to the south. Access to the site will be from an existing parking lot owned by CSU accessed from Lake Street. This will be a second location for a Sunshine House facility.

Although priority is given to CSU faculty, students and staff, this facility will be open to the Fort Collins community. Sunshine House operates several locations in Colorado, including their existing facility on Centre Avenue, Colorado Springs, Loveland and Greeley. The Sunshine House will operate the new facility designed and built for an enrollment of a maximum of 188 FTE children. The new center will provide a program of play and learning activities for children ages six weeks to 12 years. Hours of operation will be from 6:30 am to 6 pm, M-F.

The 1.5-acre site is in the HMN zoning district. Child Care Centers are subject to Administrative Review.

The area adjacent the project contains student housing, single and multi-family and the CSU Campus. The site is ideal for this type of use as it provides a service that is in a convenient and centrally-located location. There is an existing transit stop on Shields directly adjacent to the site. There are bike lanes in Shields and Lake Streets and the project will be constructing a 10' detached sidewalk along the Shields Street frontage

The modification requested is in accordance with the review procedures set forth in Section 2.8.2(H) of the Land Use Code as follows:

Modification to Section 4.10(E)(2)(b)

Code Language: Section (2) Site Design states the following:

444 Mountain Ave.
Berthoud, CO 80513
TEL 970.532.5891
WEB TBGroup.us

(b) Parking Lots. Development plans shall be arranged so that any new parking lots or other vehicle use areas are located in side or rear yards, not in front yards.

Requested Modification: We request that the proposed building have a parking lot located in the front yard.

Modification Criteria

The request of approval for this modification complies with the standards per Review Criteria 2.8.2 (H)(1) in the following ways:

1. The plan as submitted will promote the general purpose of the standard for which the modification is requested **equally well or better than** would a plan which complies with the standard for which a modification is requested.

Further, We feel that the granting of the modification would **not be detrimental to the public good**.

Justification

We feel that the plan as submitted will promote the general purpose of the standard for which the modification is requested **equally well or better than** would a plan which complies with the standard for which a modification is requested for the following reasons:

- The narrow rectangular shape of the site, coupled with the need to dedicate 8' of right-of-way and a 15' utility easement, makes it infeasible to place the vehicle use area behind the building. The building is tied to the street with the western play yards and low dry stack landscape walls.

- The orientation of the building and it's programming needs work best the primary entrance facing south with the classrooms all having exits into a play yard. There is a connecting walkway from the main entrance to the building to the new 10' sidewalk along Shields.The purpose of the connecting walkway is to strengthen the relationship between the building and the street and we feel this accomplishes this purpose equally well

- The visual impacts of the vehicle use area is greatly reduced by the use of extensive, enhanced landscaping along the frontage of both Shields and Lake Streets, utilizing a combination of shrubs, grasses and trees that will provide adequate screening.

We look forward to working with you during this process and will be happy to answer any questions you may have.

Sincerely,

Cathy Mathis, APA
Project Manager, The Birdsall Group

August 22, 2018

NEC Lake & Shields

Statement of Planning Objectives

This is a request to construct a 10,920 square foot day care center on four lots that formerly contained single family homes. The lots will be consolidated into one lot with the Plat. The building and associated play yards will be located in the middle of the site, with a parking lot to the south. Access to the site will be from an existing parking lot owned by CSU accessed from Lake Street. This will be a second location for a Sunshine House facility.

Although priority is given to CSU faculty, students and staff, this facility will be open to the Fort Collins community. Sunshine House operates several locations in Colorado, including their existing facility on Centre Avenue, Colorado Springs, Loveland and Greeley. The Sunshine House will operate the new facility designed and built for an enrollment of a maximum of 188 FTE children. The new center will provide a program of play and learning activities for children ages six weeks to 12 years. Hours of operation will be from 6:30 am to 6 pm, M-F.

The 1.5-acre site is in the HMN zoning district. Child Care Centers are subject to Administrative Review.

The area adjacent the project contains student housing, single and multi-family and the CSU Campus. The site is ideal for this type of use as it provides a service that is in a convenient and centrally-located location. There is an existing transit stop on Shields directly adjacent to the site. There are bike lanes in Shields and Lake Streets and the project will be constructing a 10' detached sidewalk along the Shields Street frontage.

(i) Statement of appropriate City Plan Principles and Policies achieved by the proposed plan:

This proposal meets the applicable City Plan Principles and Policies:

Infill and Redevelopment

Principle LIV 5: The City will promote redevelopment and infill in areas identified on the Targeted Infill and Redevelopment Areas Map.
Policy LIV 5.1 – Encourage Targeted Redevelopment and Infill

Principle LIV 6: Infill and redevelopment within residential areas will be compatible with the established character of the neighborhood. In areas where the desired character of the neighborhood is not established, or is not consistent with the vision of *City Plan*, infill and redevelopment projects will set an enhanced standard of quality.
Policy LIV 6.2 – Seek Compatibility with Neighborhoods

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Berthoud, CO 80513 | WEB TBGroup.us

The project is located within a targeted infill and redevelopment area and promotes redevelopment of four underutilized lots. The majority of the infrastructure surrounding the site already exists. The residential design of the building will compliment the existing buildings and single family homes in the area.

Transportation

Principle T 8: Transportation that provides opportunities for residents to lead healthy and active lifestyles will be promoted.
Policy T 8.1 – Support Active Transportation
Policy T 8.2 – Design for Active Living

The location of the new facility will support active lifestyles by providing on-street sidewalks, designated bike lanes and a 10' sidewalk adjacent to the site.

Principle T 9: Enhanced Travel Corridors will contain amenities and designs that specifically promote walking, the use of mass transit, and bicycling.
Policy T 9.1 – Locating Enhanced Travel Corridors

The project is located within walking distance to many Transfort stops and MAX Bus Rapid Transit is within walking and biking distance.

Principle T10: Using transit will be a safe, affordable, easy, and convenient mobility option for all ages and abilities.
Policy T 10.1 – Transit Stops

There is an existing transit stop on Shields Street.

Principle T11: Bicycling will be a safe, easy, and convenient mobility option for all ages and abilities

The location of Sunshine House Early Learning Academy will promote and support the idea of the employees and clients to utilize alternative modes of transportation (walking/biking) or public transportation. There are bike lanes and sidewalks on all of the public streets. In addition, this facility is in a convenient location for faculty and staff that ride their bikes.

(ii) Description of proposed open space, wetlands, natural habitats and features, landscaping, circulation, transition areas, and associated buffering on site and in the general vicinity of the project.
There are no wetlands or significant natural habitats within the boundaries of the site.

(iii) Statement of proposed ownership and maintenance of public and private open space areas; applicant's intentions with regard to future ownership of all or portions of the project development plan.
The facility will be constructed and owned by CSURF and will be leased to the Sunshine House.

(iv) Estimate of number of employees for business, commercial, and industrial uses.
15-20

(v) Description of rationale behind the assumptions and choices made by the applicant.
The rationale is for an 11,000 sq. ft. day care center with associated play yards and parking.

(vi) The applicant shall submit as evidence of successful completion of the applicable criteria, the completed documents pursuant to these regulations for each proposed use. The planning Director may require, or the applicant may choose to submit, evidence that is beyond what is required in that section. Any variance from the criteria shall be described.
At this time the project is not proposing any variance from the City of Fort Collins criteria.

(vii) Narrative description of how conflicts between land uses or disturbances to wetlands, natural habitats and features and or wildlife are being avoided to the maximum extent feasible or are mitigated.
There are not existing wetlands, natural habitats or features currently located on site. See above.

(viii) Written narrative addressing each concern/issue raised at the neighborhood meeting(s), if a meeting has been held.
There was a neighborhood meeting held on 08.01.18 and two neighbors were in attendance.

(ix) Name of the project as well as any previous name the project may have had during Conceptual Review.
The project is called NEC Lake & Shields. The project was Sunshine House at Conceptual Review.

SUNSHINE HOUSE
TRANSPORTATION IMPACT STUDY

FORT COLLINS, COLORADO

AUGUST 2018

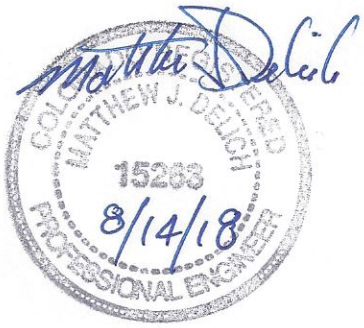
Prepared for:

CSURF
2537 Research Boulevard, Suite 200
Fort Collins, CO 80526

Prepared by:

DELICH ASSOCIATES
2272 Glen Haven Drive
Loveland, CO 80538
Phone: 970-669-2061
FAX: 970-669-5034

Project #1840



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APPENDICES

I. INTRODUCTION

This Intermediate transportation impact study (TIS) addresses the capacity, geometric, and control requirements for the proposed Sunshine House development. The proposed Sunshine House development is located in the northeast quadrant of the Shields/Lake intersection in Fort Collins, Colorado.

During the course of the analysis, numerous contacts were made with the owner/developer (CSURF) and Fort Collins Traffic Engineering. This study generally conforms to the format set forth in the Fort Collins TIS Guidelines in the "Larimer County Urban Area Street Standards" (LCUASS). A scoping discussion was held with the Fort Collins Traffic Engineering staff. The Transportation Impact Study Base Assumptions form and related documents are provided in Appendix A. The study involved the following steps:

- Collect physical, traffic, and development data;
- Perform trip generation, trip distribution, and trip assignment;
- Determine peak hour traffic volumes;
- Conduct capacity and operational level of service analyses on key intersections;
- Analyze signal warrants;
- Conduct level of service evaluation of pedestrian, bicycle, and transit modes of transportation

II. EXISTING CONDITIONS

The location of the Sunshine House is shown in Figure 1. The site is currently vacant. It is important that a thorough understanding of the existing conditions be presented.

Land Use

Land uses in the area are primarily institutional or residential. There are institutional uses (CSU) to the north and east of the site. There are residential uses surrounding the site. The center of Fort Collins lies to the east of the proposed Sunshine House site.

Streets

The primary streets near the Sunshine House site are Shields Street and Lake Street. Figure 2 shows a schematic of the existing geometry at the Shields/Lake intersection.

Shields Street is west of (adjacent to) the proposed Sunshine House site. It is a north-south street classified as a four-lane arterial street on the Fort Collins Master Street Plan. Currently, Shields Street has a four-lane cross section with center lane. At the Shields/Lake intersection, Shields Street has a southbound left-turn lane and two through lanes in each direction. The Shields/Lake intersection has signal control. The posted speed limit on Shields Street in this area is 30 mph.

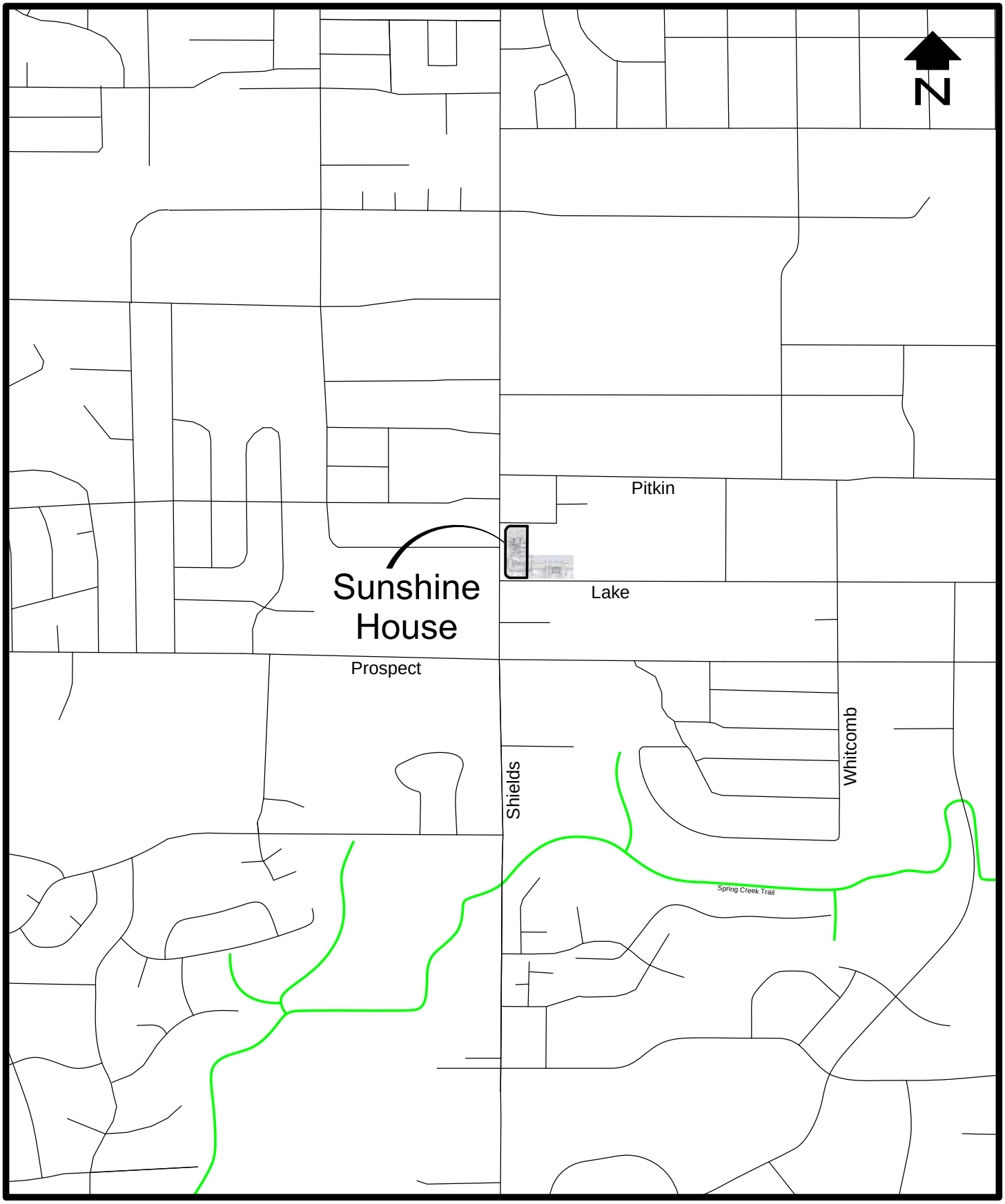
Lake Street is south of (adjacent to) the proposed Sunshine House site. It is an east-west street classified as a collector street on the Fort Collins Master Street Plan. Currently, Lake Street has a two-lane cross section (no center median lane). At the Shields/Lake intersection, Lake Street has a westbound left-turn lane and a westbound right-turn lane. The posted speed limit on this segment of Lake Street is 25 mph.

Existing Traffic

Recent peak hour traffic volumes at the Shields/Lake intersection are shown in Figure 3. The counts at the Shields/Lake intersection were obtained in September 2016 by the City of Fort Collins. Raw traffic count data is provided in Appendix B.

Existing Operation

The Shields/Lake intersection was evaluated and the peak hour operation is displayed in Table 1. Calculation forms are provided in Appendix C. The Shields/Lake intersection meets the Fort Collins level of service criteria with existing control,



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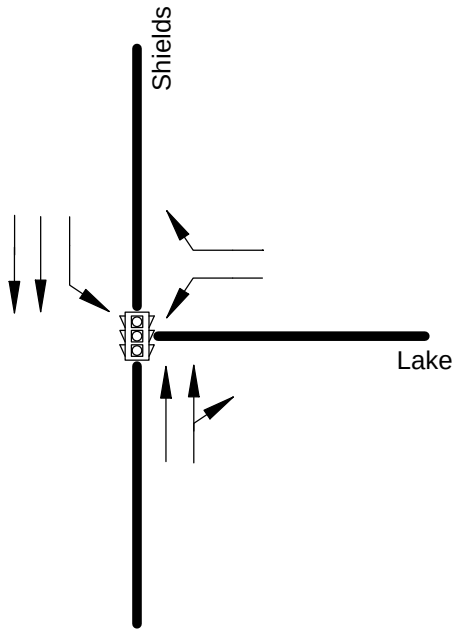
SITE LOCATION

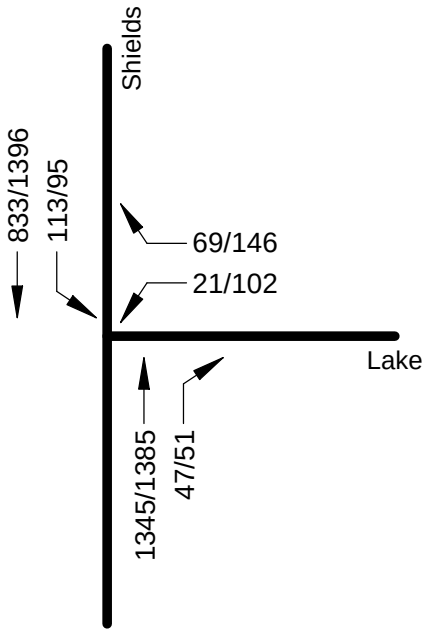
Figure 1

DELICH ASSOCIATES



- Denotes Lane

EXISTING INTERSECTION GEOMETRY Figure 2



RECENT PEAK HOUR TRAFFIC

Figure 3

geometry, and signal timing in the peak hours. The intersection was evaluated using techniques provided in the 2010 Highway Capacity Manual. A description of level of service for signalized and unsignalized intersections from the 2010 Highway Capacity Manual and a table showing the Fort Collins Motor Vehicle LOS Standards (Intersections) are also provided in Appendix C. Acceptable operation at signalized intersections during the peak hours is defined as level of service E or better for each movement and leg, and level of service D or better overall. At arterial/collector unsignalized intersections, acceptable operation is considered to be at level of service F for any approach leg and level of service D overall. It is important to note that a northbound right-turn deceleration lane is required at the Shields/Lake intersection with the existing traffic volumes. A variance was granted to not build this right-turn lane for The Standard development in 2017.

Pedestrian Facilities

There are sidewalks along Shields Street and Lake Street within the pedestrian influence area. Approximately 170 feet east of Shields Street, there is a gap in the sidewalk on the north side of Lake Street for approximately 450 feet.

Bicycle Facilities

There are bicycle lanes along Shields Street and Lake Street.

Transit Facilities

Currently, this area of Fort Collins is served by Transfort Routes 19 and 32. Routes 19 and 32 operate along Shields Street and Lake Street.

TABLE 1
Current Peak Hour Operation

Intersection	Movement	Level of Service	
		AM	PM
Shields/Lake (signal)	WB LT	E	E
	WB RT	A	D
	WB APPROACH	E	E
	NB T	A	A
	NB T/RT	A	A
	NB APPROACH	A	A
	SB LT	A	A
	SB T	A	A
	SB APPROACH	A	A
	OVERALL	A	A

III. PROPOSED DEVELOPMENT

The Sunshine House is a day care center development with approximately 156 students. Figure 4 shows a site plan of the Sunshine House. The short range analysis (Year 2023) includes development of the Sunshine House site and an appropriate increase in background traffic due to normal growth and other potential developments in the area. The site plan shows that there will be an access to/from Lake Street that lines up with the Islamic Center site access.

Trip Generation

Trip generation is important in considering the impact of a development such as this upon the existing and proposed street system. A compilation of trip generation information contain in Trip Generation, 10th Edition, ITE is used to estimate the trips that would be generated by the proposed/expected uses at a site. A trip is defined as a one-way vehicle movement from origin to destination. Table 2 shows the expected trip generation on a daily and peak hour basis. The trip generation of the Sunshine House development resulted in 638 daily trip ends, 122 morning peak hour trip ends, and 123 afternoon peak hour trip ends.

TABLE 2
Trip Generation

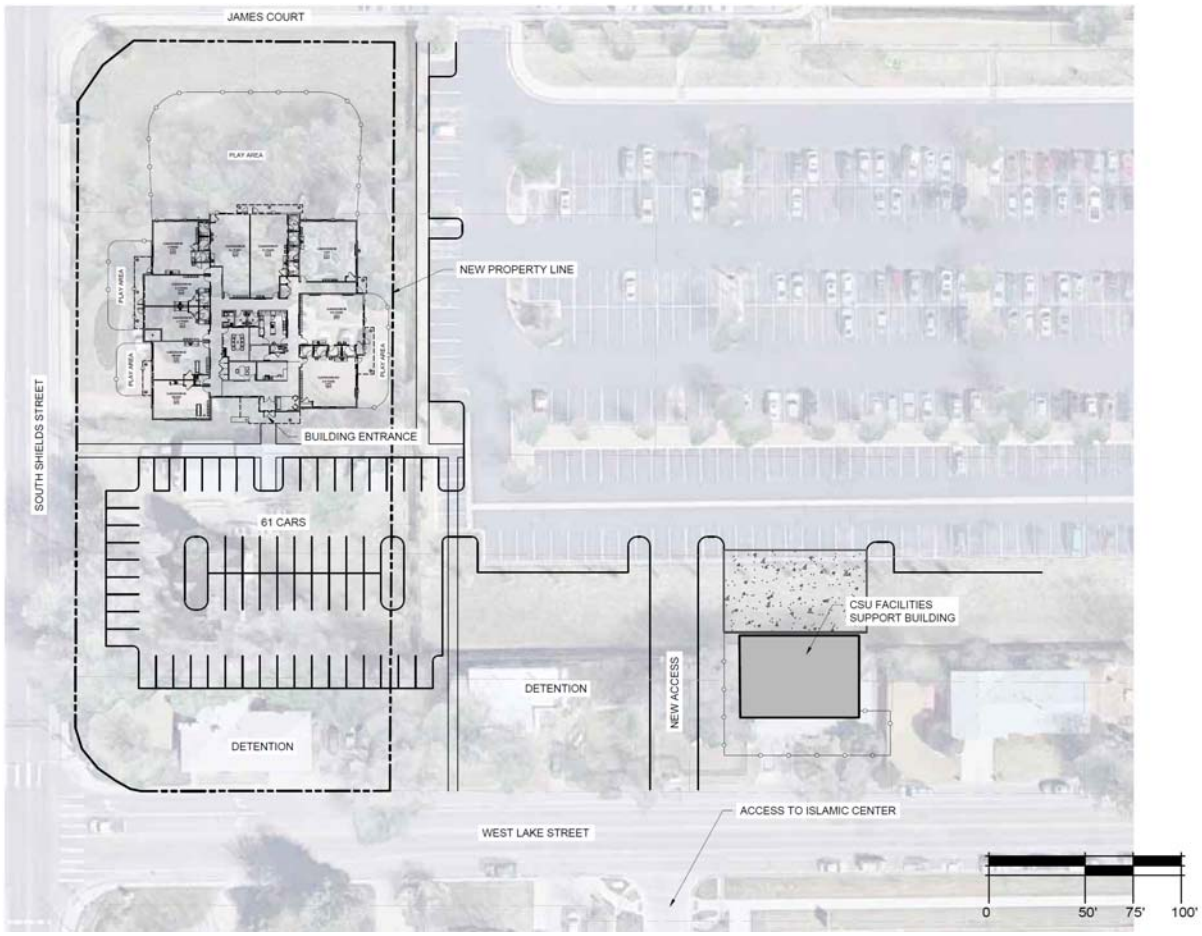
Code	Use	Size	AWDTE		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	In	Rate	Out	Rate	In	Rate	Out
565	Day Care Center	156 Students	4.09	638	0.41	64	0.37	58	0.37	58	0.42	65

Trip Distribution

Trip distribution for the Sunshine House was based on existing/future travel patterns, land uses in the area, consideration of trip attractions in Fort Collins, and engineering judgment. Figure 5 shows the trip distribution for the short range (2023) analysis future. The trip distribution was agreed to by City of Fort Collins staff in the scoping discussions.

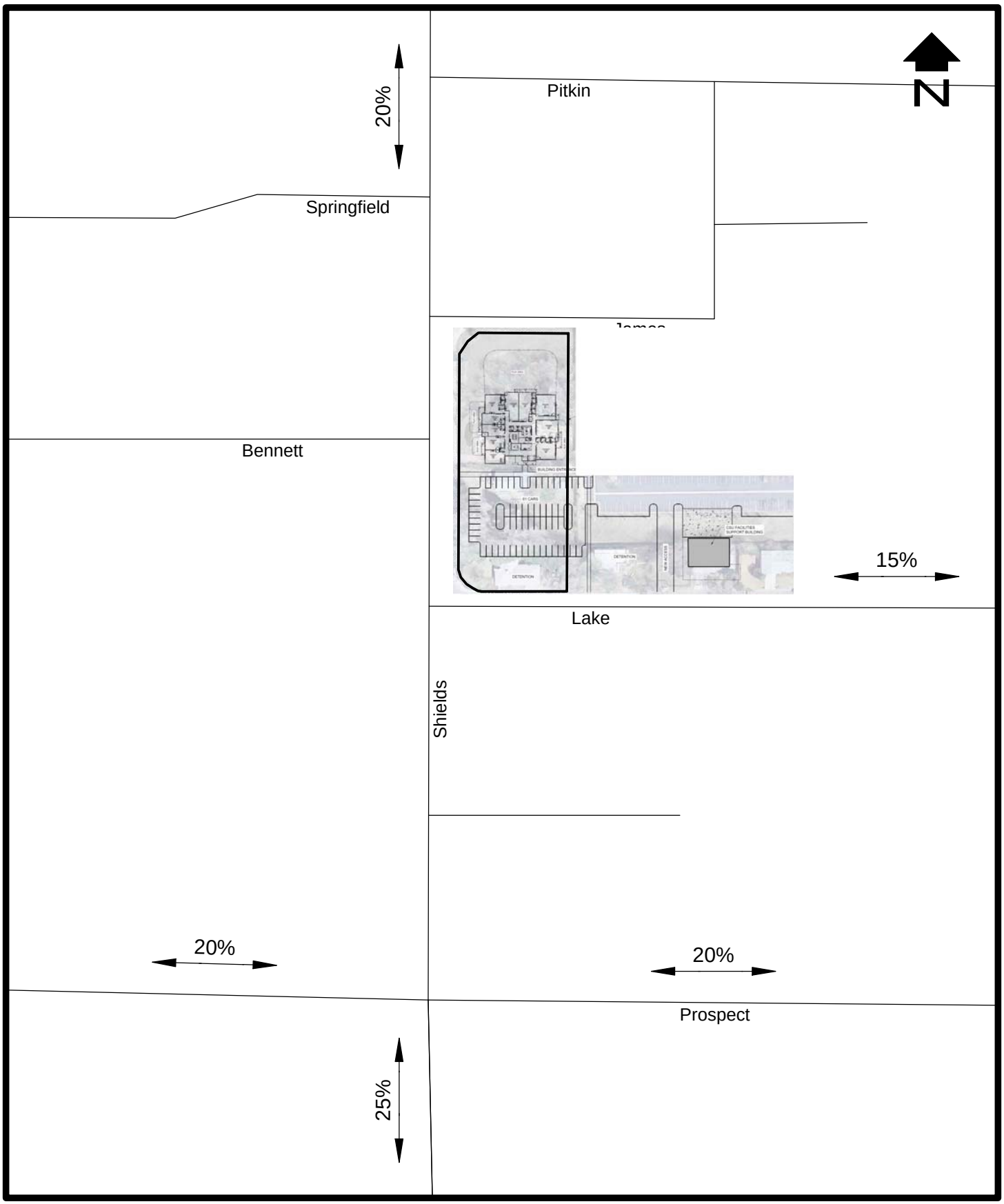
N

SCALE: 1"=100'



SITE PLAN

Figure 4



SCALE: 1"=200'

TRIP DISTRIBUTION

Figure 5

DELICH ASSOCIATES

Background Traffic Projections

Figure 6 shows the short range (2023) background traffic projections. Background traffic projections for the short range future horizon were obtained by reviewing various traffic studies prepared for this area of Fort Collins. It was determined that the through traffic volumes on Shields Street would increase by approximately one percent per year in the short range future. The best method to determine the short range (2023) background traffic would be to use the forecasts in the "Standard at Fort Collins TIS" and factor them appropriately. The background traffic growth methodology was agreed to by City of Fort Collins staff in the scoping discussions. Normal weekday traffic (excluding Friday) was calculated for the Islamic Center. The existing CSU parking lot serves the student dormitories on the west side of the campus. The current parking lot access to James Court will be gated as an emergency access. Since the Site Access for the Sunshine House will connect to the existing CSU parking lot, weekday peak hour volumes for the parking lot were estimated and are reflected in the background traffic volumes on Figure 6.

Trip Assignment

Trip assignment is how the generated and distributed trips are expected to be loaded on the street system. The assigned trips are the resultant of the trip distribution process. Figure 7 shows the site generated peak hour traffic assignment. Figure 8 shows the short range (2023) total (site plus background) peak hour traffic assignment.

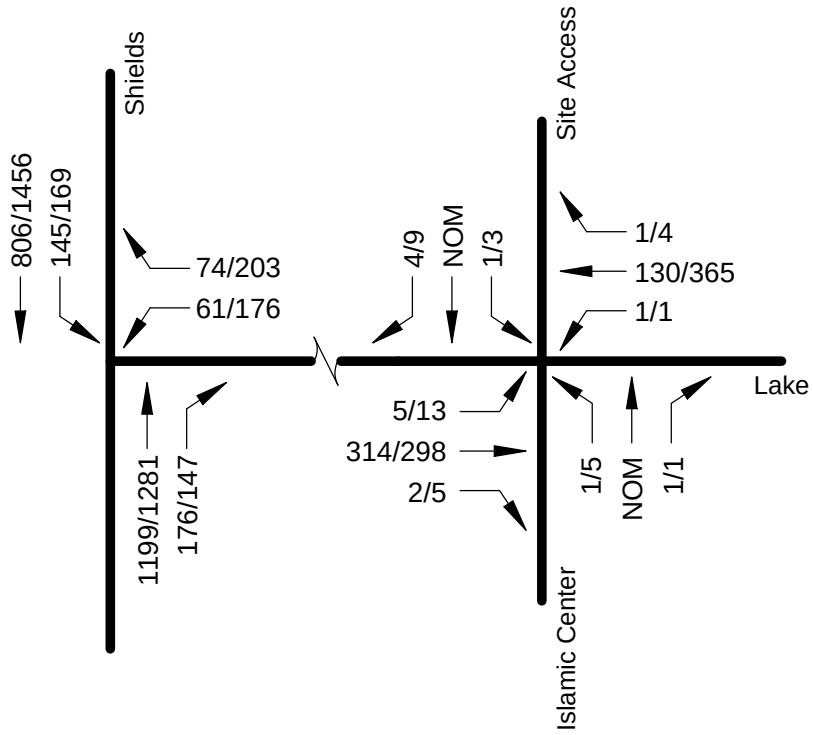
Signal Warrants

As a matter of policy, traffic signals are not installed at any location unless warrants are met according to the Manual on Uniform Traffic Control Devices. The Shields/Lake intersection is currently signalized. The Lake/Islamic Center-Site Access intersection will not meet signal spacing requirements.

Operation Analysis

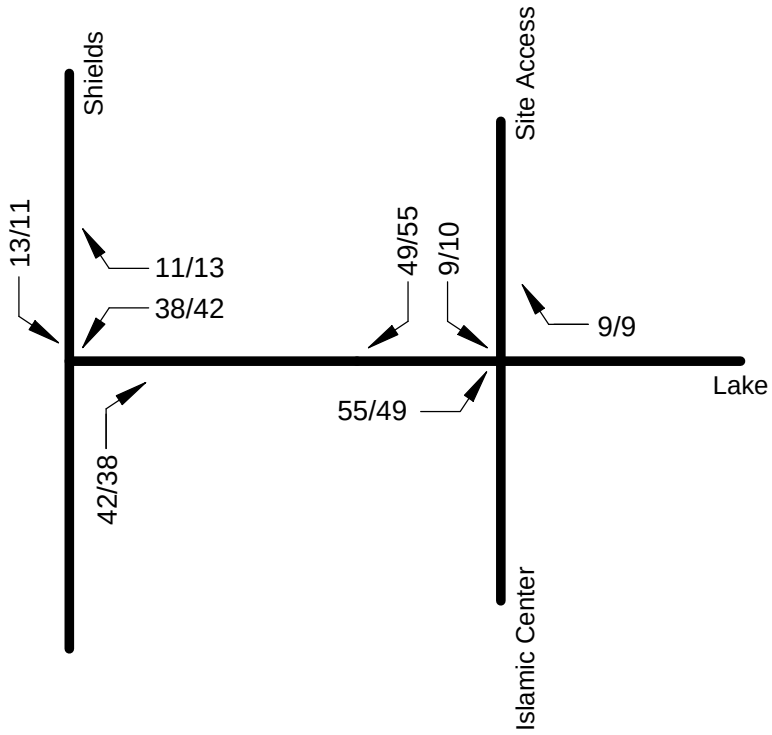
Operation analyses were performed at the Shields/Lake and Lake/Islamic Center-Site Access intersections. The operation analyses were conducted for the short range future, reflecting year 2023 conditions.

Using the traffic volumes shown in Figure 6, the Shields/Lake and Lake/Islamic Center-Site Access intersections operate in the short range (2023) background traffic future, as indicated in Table 3. The Shields/Lake intersection was analyzed with the existing geometry and signal timing. Calculation forms for these analyses are provided in Appendix D. The Shields/Lake and Lake/Islamic Center-Site Access intersections meet the Fort Collins level of service criteria in the peak hours.



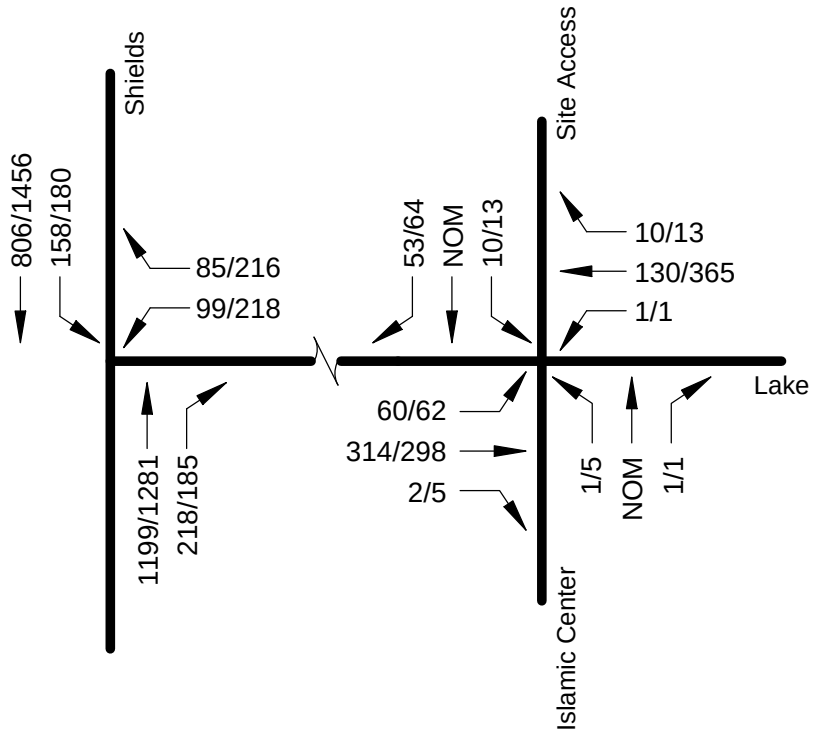
SHORT RANGE (2023) BACKGROUND
PEAK HOUR TRAFFIC

Figure 6



SITE GENERATED
PEAK HOUR TRAFFIC

Figure 7



SHORT RANGE (2023) TOTAL
PEAK HOUR TRAFFIC

Figure 8

TABLE 3 Short Range (2023) Background Peak Hour Operation			
Intersection	**Movement**	**Level of Service**	
		AM	**PM**
Shields/Lake (signal)	WB LT	E	E
	WB RT	A	D
	WB APPROACH	E	E
	NB T	A	B
	NB T/RT	A	B
	NB APPROACH	A	B
	SB LT	A	B
	SB T	A	A
	SB APPROACH	A	A
	OVERALL	A	B
Lake/Islamic Center-Site Access (stop sign)	NB LT/T/RT	B	C
	SB LT/T/RT	A	B
	EB LT	A	A
	WB LT	A	A
	OVERALL	A	A

Using the traffic volumes shown in Figure 8, the Shields/Lake and Lake/Islamic Center-Site Access intersections operate in the short range (2023) total traffic future, as indicated in Table 4. Calculation forms for these analyses are provided in Appendix E. As with the background traffic, the Shields/Lake and Lake/Islamic Center-Site Access intersections meet the Fort Collins level of service criteria in the peak hours with existing control, geometry, and signal timing at the Shields/Lake intersection.

Geometry

Figure 9 shows a schematic of the short range (2023) geometry. This is the existing geometry at the Shields/Lake intersection. As mentioned earlier, a northbound right-turn lane on Shields Street, approaching Lake Street, is required with the existing traffic volumes. Typically at constrained locations, when the turn lanes are shown to be required based on volumes, the auxiliary lanes are not built unless the subject turn lane will mitigate an operational issue. A variance request will be submitted for the northbound right-turn deceleration lane at the Shields/Lake intersection. The Shields/Lake intersection meets the Fort Collins operational level of service criteria in the peak hours without the northbound right-turn lane. According to Figure 8-1 in LCUASS, left-turn deceleration lanes will not be required at the Lake/Islamic Center-Site Access intersection. With the existing signal timing at the Shields/Lake intersection and the short range (2023) total traffic volumes, the westbound left-turn lane 95th percentile queue length is approximately 254 feet. The existing westbound left-turn lane is approximately 95 feet long. Adjustments in the signal timing can shorten the westbound left-turn queue length.

Pedestrian Level of Service

Appendix F shows a map of the area that is within 1320 feet of the Sunshine House site. There will be four pedestrian destinations within 1320 feet of the Sunshine House site. These are: 1) the CSU Campus to the north and east of the site, 2) residential area to the east and southeast of the site, 3) the commercial area to the southwest of the site, and 4) the residential area to the west of the site. This site is in an area type termed “CSU Campus,” which is the same as a “pedestrian district.” The Pedestrian LOS Worksheet is provided in Appendix F. The minimum level of service for “pedestrian district” is A for all areas of evaluation, except for Street Crossing which is LOS B. Since this is an older section of the City and sidewalks were constructed under different standards, the Continuity category cannot be achieved for any of the destination areas. Many of the sidewalks are attached to the street and/or are too narrow. There are two single family houses (928 & 934 Lake Street) to the east of the Sunshine House site that have no sidewalks adjacent to their frontage. These sidewalks will likely not be built until these two single family houses redevelop. As elements of the “West Central Area Plan” along Lake Street are implemented, the sidewalks will be improved.

Bicycle Level of Service

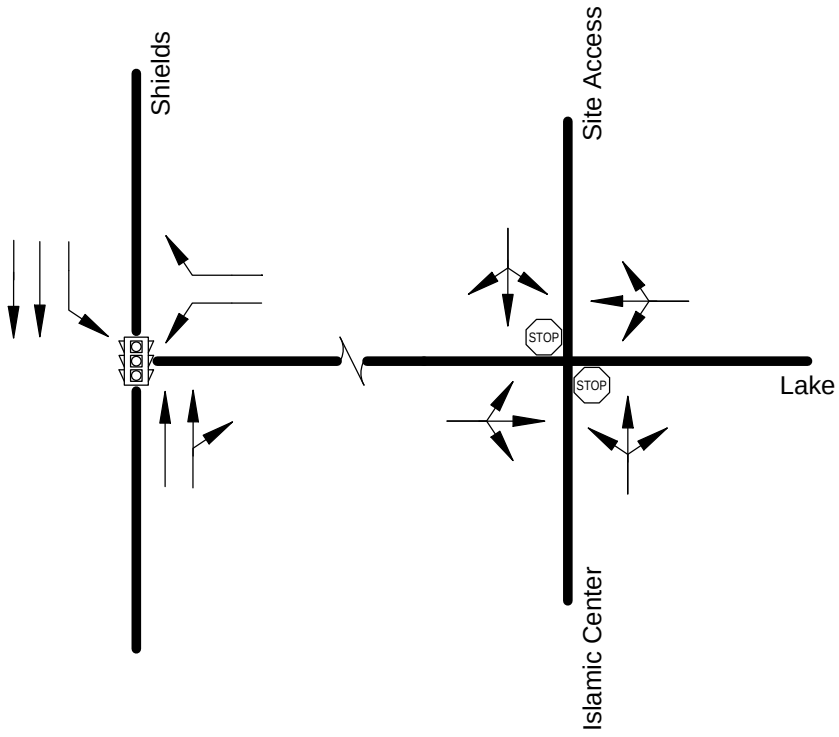
Appendix F shows a map of the area that is within 1320 feet of the Sunshine House development. There will be one bicycle destination within 1320 feet of the Sunshine House development: 1) the CSU Campus. The Bicycle LOS Worksheet is provided in Appendix F. The base level of service is B for each of the bicycle destinations. This site is connected to bicycle lanes along Shields Street and Lake Street. Therefore, it is concluded that level of service B can be achieved.

Transit Level of Service

Currently, this area of Fort Collins is served by Transfort Routes 19 and 32. Routes 19 and 32 operate along Shields Street and Lake Street.

TABLE 4
Short Range (2023) Total Peak Hour Operation

Intersection	Movement	Level of Service	
		AM	PM
Shields/Lake (signal)	WB LT	D	E
	WB RT	A	D
	WB APPROACH	D	E
	NB T	A	B
	NB T/RT	A	B
	NB APPROACH	A	B
	SB LT	B	B
	SB T	A	A
	SB APPROACH	A	A
	OVERALL	A	B
Lake/Islamic Center-Site Access (stop sign)	NB LT/T/RT	B	C
	SB LT/T/RT	B	B
	EB LT	A	A
	WB LT	A	A
	OVERALL	A	A



SHORT RANGE (2023) GEOMETRY Figure 9

IV. CONCLUSIONS

This study assessed the impacts of the Sunshine House on the street system in the vicinity of the proposed development in the short range (2023) future. As a result of this analysis, the following is concluded:

- The development of the Sunshine House is feasible from a traffic engineering standpoint. At full development, the Sunshine House will generate approximately 638 daily trip ends, 122 morning peak hour trip ends, and 123 afternoon peak hour trip ends.

- The Shields/Lake intersection meets Fort Collins operational criteria with the existing traffic, signal timing, and geometry.

- The Shields/Lake intersection is currently signalized. The Lake/Islamic Center-Site Access intersection will not meet signal spacing requirements.

- In the short range (2023) future, given development of the Sunshine House and an increase in background traffic, the Shields/Lake and Lake/Islamic Center-Site Access intersections will meet the Fort Collins operational criteria.

- The short range (2023) geometry is shown in Figure 9. A northbound right-turn lane is required approaching the Shields/Lake intersection. A variance request will be submitted for this right-turn lane.

- Acceptable level of service is achieved for bicycle and transit modes based upon the measures in the multi-modal transportation guidelines and the Fort Collins Pedestrian Plan. Since this is an older section of the City and sidewalks were constructed under different standards, the Continuity category cannot be achieved for any of the destination areas. Many of the sidewalks are attached to the street and/or are too narrow. As elements of the “West Central Area Plan” along Lake Street are implemented, the sidewalks will be improved.

APPENDIX A

Attachment A
Transportation Impact Study
Base Assumptions

Project Information		
Project Name	SUNSHINE HOUSE #213	
Project Location	NE QUADRANT OF SHIELDS/LAKE	
TIS Assumptions		
Type of Study	Full: NO	Intermediate: YES
Study Area Boundaries	North: LAKE	South: LAKE
	East: SITE ACCESS	West: SHIELDS
Study Years	Short Range:	Long Range: N/A
Future Traffic Growth Rate	USE FORECASTS FROM "STANDARD TIS"	
Study Intersections	1. All access drives (1)	5.
	2. SHIELDS/LAKE	6.
	3.	7.
	4.	8.
Time Period for Study	AM: 7:00-9:00 PM: 4:00-6:00	Sat Noon: N/A
Trip Generation Rates	PER T.G., 10TH (ATTACHED)	
Trip Adjustment Factors	Passby: N/A	Captive Market: N/A
Overall Trip Distribution	SEE ATTACHED SKETCH	
Mode Split Assumptions	N/A	
Committed Roadway Improvements	LAKE STREET FRONTAGE	
Other Traffic Studies	STANDARD AT FORT COLLINS TIS 821 WEST LAKE STREET TIS	
Areas Requiring Special Study	DISCUSS "WEST CENTRAL AREA PLAN"	

Date: MAY 31, 2018

Traffic Engineer: DELICH ASSOCIATES

Local Entity Engineer: [signature] 6/5/2018

1840 BAF

Attachment A
Transportation Impact Study
Base Assumptions

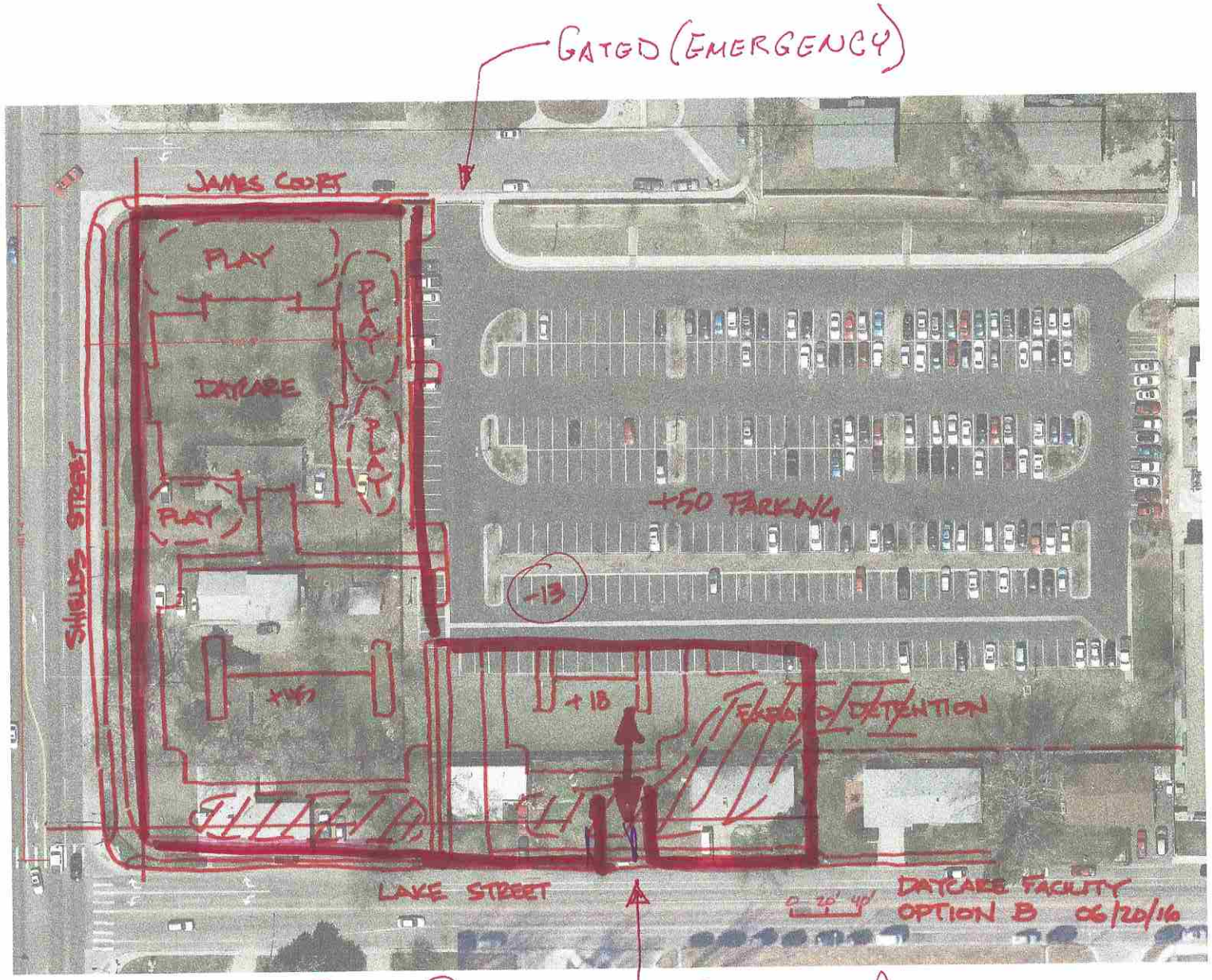
Project Information			
Project Name	SUNSHINE HOUSE #213		
Project Location	NE QUADRANT OF SHIELDS/LAKE		
TIS Assumptions			
Type of Study	Full: NO		Intermediate: YES
Study Area Boundaries	North: LAKE		South: LAKE
	East: SITE ACCESS		West: SHIELDS
Study Years	Short Range:		Long Range: N/A
Future Traffic Growth Rate	USE FORECASTS FROM "STANDARD TIS"		
Study Intersections	1. All access drives (1)	5.	
	2. SHIELDS/LAKE	6.	
	3.	7.	
	4.	8.	
Time Period for Study	(AM: 7:00-9:00) (PM: 4:00-6:00)		Sat Noon: N/A
Trip Generation Rates	PER T.G., 10TH (ATTACHED)		
Trip Adjustment Factors	Passby: N/A		Captive Market: N/A
Overall Trip Distribution	SEE ATTACHED SKETCH		
Mode Split Assumptions	N/A		
Committed Roadway Improvements	LAKE STREET FRONTAGE		
Other Traffic Studies	STANDARD AT FORT COLLINS TIS 821 WEST LAKE STREET TIS		
Areas Requiring Special Study	DISCUSS "WEST CENTRAL AREA PLAN"		

Date: MAY 31, 2018

Traffic Engineer: DELICH ASSOCIATES

Local Entity Engineer: _____

1840 BAF



PRELIMINARY SITE PLAN

PRIMARY ACCESS

SUNSHINE HOUSE (SHIELDS/LAKE)

T.G., 10TH [DAY CARE CENTER - CODE 565]

10.9 KSF 24 STAFF 156 STUDENTS

KSF

DAILY (47.62) - 520 TE

AM IN (5.83) - 64
OUT (5.17) - 56

PM IN (5.23) - 57
OUT (5.89) - 64

EMPLOYEES (STAFF)

DAILY (21.38) - 514 TE

AM IN (2.38) - 57
OUT (2.11) - 51

PM IN (2.09) - 49
OUT (2.31) - 56

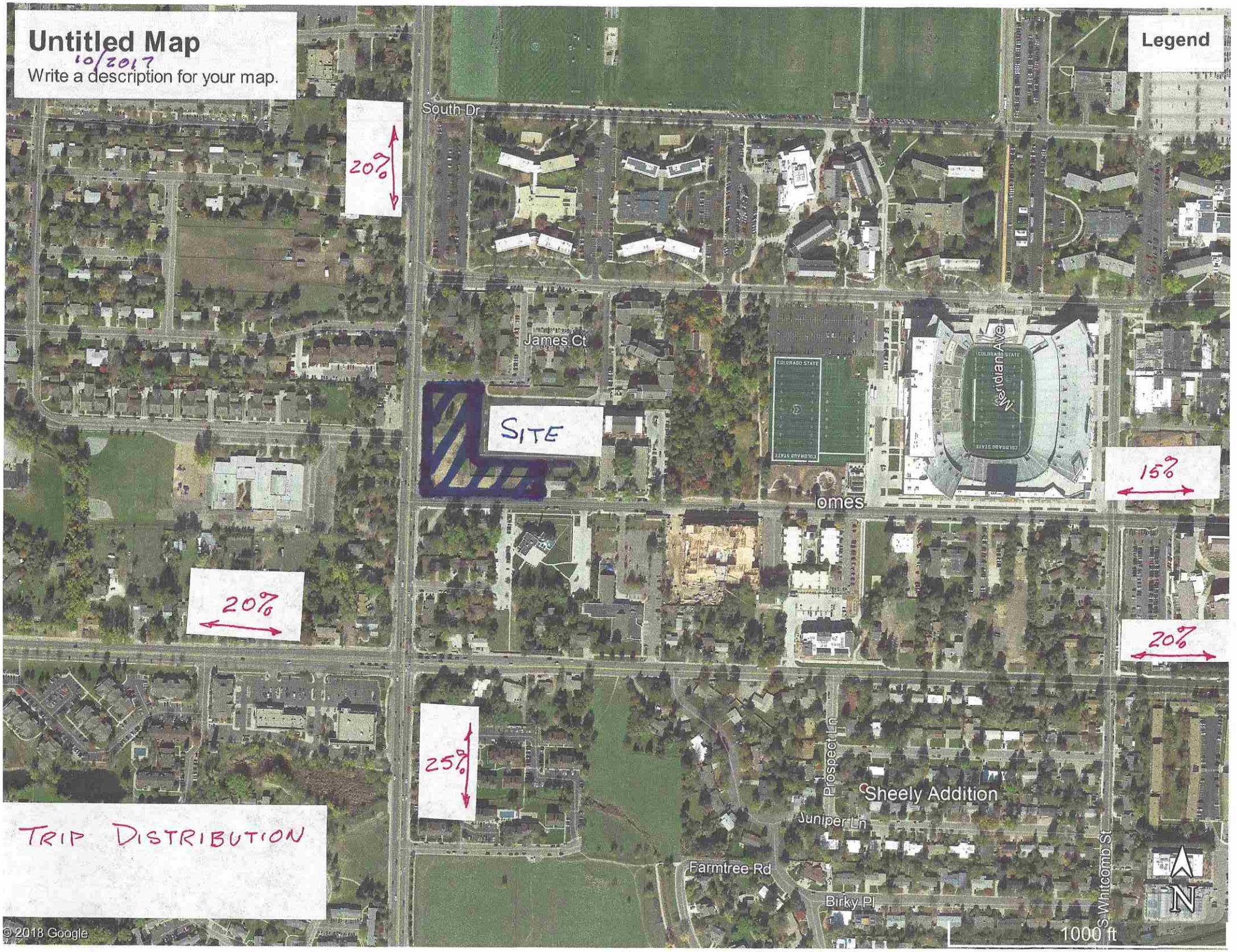
STUDENTS

USE

DAILY (4.09) - 638 TE

AM IN (0.41) - 64
OUT (0.37) - 58

PM IN (0.37) - 58
OUT (0.42) - 65


Untitled Map
10/2017
Write a description for your map.
Legend
South Dr
20%
James Ct
SITE
Meridian Ave
15%
omes
20%
20%
25%
Prospect Ln
Sheely Addition
Juniper Ln
Farmtree Rd
Birky Pl
S Whitcomb St
N
1000 ft
© 2018 Google
TRIP DISTRIBUTION

APPENDIX B

DELICH ASSOCIATES
2272 GLEN HAVEN DRIVE
LOVELAND, CO 80538
Phone: (970) 669-2061

TABULAR SUMMARY OF VEHICLE COUNTS

Date: 9/15/2016 Observer: City of Fort Collins

Day: Thursday Jurisdiction: Fort Collins

Intersection: Shields/Lake

R = right turn
S = straight
L = left turn

Time	Northbound: Shields				Southbound: Shields				Total	Eastbound:				Westbound: Lake				Total	Total
Begins	L	S	R	Total	L	S	R	Total	north/south	L	S	R	Total	L	S	R	Total	east/west	All
7:30		351	20	371	29	183		212	583				0	4		15	19	19	602
7:45		409	12	421	35	209		244	665				0	8		24	32	32	697
8:00		285	6	291	24	238		262	553				0	5		19	24	24	577
8:15		300	9	309	25	203		228	537				0	4		11	15	15	552
7:30-8:30	0	1345	47	1392	113	833	0	946	2338	0	0	0	0	21	0	69	90	90	2428
PHF	n/a	0.82	0.59	0.83	0.81	0.88	n/a	0.9		n/a	n/a	n/a	n/a	0.66	n/a	0.72	0.7		0.87
4:30		337	15	352	21	333		354	706				0	15		42	57	57	763
4:45		329	10	339	33	338		371	710				0	25		39	64	64	774
5:00		353	14	367	21	382		403	770				0	31		33	64	64	834
5:15		366	12	378	20	343		363	741				0	31		32	63	63	804
4:30-5:30	0	1385	51	1436	95	1396	0	1491	2927	0	0	0	0	102	0	146	248	248	3175
PHF	n/a	0.95	0.85	0.95	0.72	0.91	n/a	0.92		n/a	n/a	n/a	n/a	0.82	n/a	0.87	0.97		0.95

APPENDIX C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	69	1345	47	113	833
Future Volume (veh/h)	21	69	1345	47	113	833
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	24	0	1546	53	130	957
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	50	44	2807	96	383	3167
Arrive On Green	0.03	0.00	0.80	0.79	0.06	0.89
Sat Flow, veh/h	1774	1583	3585	119	1774	3632
Grp Volume(v), veh/h	24	0	782	817	130	957
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1842	1774	1770
Q Serve(g_s), s	1.5	0.0	17.1	17.3	1.0	4.3
Cycle Q Clear(g_c), s	1.5	0.0	17.1	17.3	1.0	4.3
Prop In Lane	1.00	1.00		0.06	1.00	
Lane Grp Cap(c), veh/h	50	44	1422	1480	383	3167
V/C Ratio(X)	0.48	0.00	0.55	0.55	0.34	0.30
Avail Cap(c_a), veh/h	331	295	1422	1480	480	3167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	0.0	3.8	3.8	3.6	0.8
Incr Delay (d2), s/veh	7.1	0.0	1.5	1.5	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	8.6	9.3	1.2	2.1
LnGrp Delay(d),s/veh	59.8	0.0	5.3	5.3	4.2	1.1
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	24		1599			1087
Approach Delay, s/veh	59.8		5.3			1.4
Approach LOS	E		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		102.4			10.0	92.4		7.6
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		80.0			12.0	64.0		19.5
Max Q Clear Time (g_c+I1), s		6.3			3.0	19.3		3.5
Green Ext Time (p_c), s		18.9			0.2	17.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	85	16	69	25
Maximum Split (%)	77.3%	14.5%	62.7%	22.7%
Minimum Split (s)	23	10	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	6	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	81	81	97	56
End Time (s)	56	97	56	81
Yield/Force Off (s)	51	93	51	75.5
Yield/Force Off 170(s)	51	93	40	63.5
Local Start Time (s)	25	25	41	0
Local Yield (s)	105	37	105	19.5
Local Yield 170(s)	105	37	94	7.5

Intersection Summary

Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	75

Offset: 56 (51%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	24	79	1600	130	957
v/c Ratio	0.12	0.32	0.63	0.44	0.32
Control Delay	41.7	12.3	11.7	8.6	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	12.3	11.7	8.6	3.4
Queue Length 50th (ft)	16	0	226	9	50
Queue Length 95th (ft)	37	38	476	41	129
Internal Link Dist (ft)	1545		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	329	359	2534	350	2967
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.22	0.63	0.37	0.32

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	102	146	1385	51	95	1396
Future Volume (veh/h)	102	146	1385	51	95	1396
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	107	26	1458	52	100	1469
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	151	135	2681	95	356	2987
Arrive On Green	0.09	0.09	0.77	0.76	0.05	0.84
Sat Flow, veh/h	1774	1583	3579	124	1774	3632
Grp Volume(v), veh/h	107	26	739	771	100	1469
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1841	1774	1770
Q Serve(g_s), s	7.0	1.8	19.9	20.0	1.2	13.3
Cycle Q Clear(g_c), s	7.0	1.8	19.9	20.0	1.2	13.3
Prop In Lane	1.00	1.00		0.07	1.00	
Lane Grp Cap(c), veh/h	151	135	1361	1415	356	2987
V/C Ratio(X)	0.71	0.19	0.54	0.54	0.28	0.49
Avail Cap(c_a), veh/h	347	310	1361	1415	386	2987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	51.0	5.5	5.5	4.6	2.5
Incr Delay (d2), s/veh	6.0	0.7	1.6	1.5	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.8	10.2	10.7	0.9	6.6
LnGrp Delay(d),s/veh	59.4	51.7	7.1	7.0	5.0	3.1
LnGrp LOS	E	D	A	A	A	A
Approach Vol, veh/h	133		1510			1569
Approach Delay, s/veh	57.9		7.1			3.2
Approach LOS	E		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		105.3			9.0	96.3		14.7
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		87.0			7.0	76.0		22.5
Max Q Clear Time (g_c+I1), s		15.3			3.2	22.0		9.0
Green Ext Time (p_c), s		26.7			0.1	24.4		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	92	11	81	28
Maximum Split (%)	76.7%	9.2%	67.5%	23.3%
Minimum Split (s)	23	9	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	5	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	33	44	5
End Time (s)	5	44	5	33
Yield/Force Off (s)	0	40	0	27.5
Yield/Force Off 170(s)	0	40	109	15.5
Local Start Time (s)	28	28	39	0
Local Yield (s)	115	35	115	22.5
Local Yield 170(s)	115	35	104	10.5

Intersection Summary

Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70

Offset: 5 (4%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	107	154	1512	100	1469
v/c Ratio	0.49	0.49	0.60	0.35	0.52
Control Delay	55.6	15.0	10.5	6.1	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	15.0	10.5	6.1	5.1
Queue Length 50th (ft)	79	11	258	11	147
Queue Length 95th (ft)	131	70	406	28	250
Internal Link Dist (ft)	1545		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	346	421	2519	291	2852
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.37	0.60	0.34	0.52

Intersection Summary

UNSIGNALIZED INTERSECTIONS

Level-of-Service	Average Total Delay sec/veh
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

SIGNALIZED INTERSECTIONS

Level-of-Service	Average Total Delay sec/veh
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Table 4-3
Fort Collins (GMA and City Limits)
Motor Vehicle LOS Standards (Intersections)

	Overall	Any Approach Leg	Any Movement
Signalized	D[1]	E	E[2]
Unsignalized Arterial/Arterial Collector/Collector	E[3]	F[4]	
Unsignalized Arterial/Collector Arterial/Local Collector/Local Local/Local	D[3]	F[4]	
Roundabout	E[3,5]	E[5,4]	E[5]

[1] In mixed use district including downtown as defined by structure plan, overall LOS E is acceptable
[2] Applicable with at least 5% of total entering volume
[3] Use weighed average to identify overall delay
[4] Mitigation may be required
[5] Apply unsignalized delay value thresholds to determine LOS

APPENDIX D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	61	74	1199	176	145	806
Future Volume (veh/h)	61	74	1199	176	145	806
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	70	0	1378	193	167	926
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	107	95	2410	335	369	3053
Arrive On Green	0.06	0.00	0.77	0.76	0.06	0.86
Sat Flow, veh/h	1774	1583	3216	433	1774	3632
Grp Volume(v), veh/h	70	0	776	795	167	926
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1786	1774	1770
Q Serve(g_s), s	4.2	0.0	19.6	20.3	1.7	5.4
Cycle Q Clear(g_c), s	4.2	0.0	19.6	20.3	1.7	5.4
Prop In Lane	1.00	1.00		0.24	1.00	
Lane Grp Cap(c), veh/h	107	95	1366	1378	369	3053
V/C Ratio(X)	0.66	0.00	0.57	0.58	0.45	0.30
Avail Cap(c_a), veh/h	331	295	1366	1378	466	3053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	0.0	5.1	5.2	5.9	1.4
Incr Delay (d2), s/veh	6.7	0.0	1.7	1.8	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	10.1	10.4	2.1	2.7
LnGrp Delay(d),s/veh	57.3	0.0	6.8	7.0	6.8	1.7
LnGrp LOS	E		A	A	A	A
Approach Vol, veh/h	70		1571			1093
Approach Delay, s/veh	57.3		6.9			2.4
Approach LOS	E		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		98.9			10.0	88.9		11.1
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		80.0			12.0	64.0		19.5
Max Q Clear Time (g_c+I1), s		7.4			3.7	22.3		6.2
Green Ext Time (p_c), s		18.2			0.3	16.2		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	85	16	69	25
Maximum Split (%)	77.3%	14.5%	62.7%	22.7%
Minimum Split (s)	23	10	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	6	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	81	81	97	56
End Time (s)	56	97	56	81
Yield/Force Off (s)	51	93	51	75.5
Yield/Force Off 170(s)	51	93	40	63.5
Local Start Time (s)	25	25	41	0
Local Yield (s)	105	37	105	19.5
Local Yield 170(s)	105	37	94	7.5

Intersection Summary

Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	75

Offset: 56 (51%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	70	85	1580	167	926
v/c Ratio	0.33	0.32	0.67	0.56	0.33
Control Delay	46.1	11.8	13.5	15.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	11.8	13.5	15.0	3.8
Queue Length 50th (ft)	47	0	274	16	60
Queue Length 95th (ft)	82	40	466	80	123
Internal Link Dist (ft)	272		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	329	364	2366	340	2835
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.23	0.67	0.49	0.33

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	176	203	1281	147	169	1456
Future Volume (veh/h)	176	203	1281	147	169	1456
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	185	78	1348	149	178	1533
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	232	207	2300	253	341	2826
Arrive On Green	0.13	0.13	0.72	0.71	0.06	0.80
Sat Flow, veh/h	1774	1583	3309	354	1774	3632
Grp Volume(v), veh/h	185	78	738	759	178	1533
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1800	1774	1770
Q Serve(g_s), s	12.1	5.4	24.5	25.0	2.8	18.5
Cycle Q Clear(g_c), s	12.1	5.4	24.5	25.0	2.8	18.5
Prop In Lane	1.00	1.00		0.20	1.00	
Lane Grp Cap(c), veh/h	232	207	1265	1287	341	2826
V/C Ratio(X)	0.80	0.38	0.58	0.59	0.52	0.54
Avail Cap(c_a), veh/h	347	310	1265	1287	355	2826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	47.7	8.4	8.5	9.1	4.3
Incr Delay (d2), s/veh	7.5	1.1	2.0	2.0	1.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	2.4	12.4	13.0	2.7	9.0
LnGrp Delay(d),s/veh	58.2	48.8	10.3	10.5	10.4	5.1
LnGrp LOS	E	D	B	B	B	A
Approach Vol, veh/h	263		1497			1711
Approach Delay, s/veh	55.4		10.4			5.6
Approach LOS	E		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		99.8			10.0	89.8		20.2
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		87.0			7.0	76.0		22.5
Max Q Clear Time (g_c+I1), s		20.5			4.8	27.0		14.1
Green Ext Time (p_c), s		27.4			0.1	24.4		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	92	11	81	28
Maximum Split (%)	76.7%	9.2%	67.5%	23.3%
Minimum Split (s)	23	10	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	6	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	33	44	5
End Time (s)	5	44	5	33
Yield/Force Off (s)	0	40	0	27.5
Yield/Force Off 170(s)	0	40	109	15.5
Local Start Time (s)	28	28	39	0
Local Yield (s)	115	35	115	22.5
Local Yield 170(s)	115	35	104	10.5

Intersection Summary

Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	70

Offset: 5 (4%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	185	214	1503	178	1533
v/c Ratio	0.68	0.58	0.64	0.64	0.56
Control Delay	60.4	20.8	13.1	18.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	20.8	13.1	18.2	6.7
Queue Length 50th (ft)	137	43	325	28	211
Queue Length 95th (ft)	207	117	426	#106	310
Internal Link Dist (ft)	272		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	346	432	2361	281	2744
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.50	0.64	0.63	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	314	2	1	130	1	1	0	1	1	0	4
Future Vol, veh/h	5	314	2	1	130	1	1	0	1	1	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	361	2	1	149	1	1	0	1	1	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	151	0	0	363	0	0	529	527	362	526	527	150
Stage 1	-	-	-	-	-	-	374	374	-	152	152	-
Stage 2	-	-	-	-	-	-	155	153	-	374	375	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1430	-	-	1196	-	-	460	456	683	462	456	896
Stage 1	-	-	-	-	-	-	647	618	-	850	772	-
Stage 2	-	-	-	-	-	-	847	771	-	647	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1430	-	-	1196	-	-	456	453	683	459	453	896
Mov Cap-2 Maneuver	-	-	-	-	-	-	456	453	-	459	453	-
Stage 1	-	-	-	-	-	-	644	615	-	846	771	-
Stage 2	-	-	-	-	-	-	842	770	-	643	614	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	11.6	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	547	1430	-	-	1196	-	-	753
HCM Lane V/C Ratio	0.004	0.004	-	-	0.001	-	-	0.008
HCM Control Delay (s)	11.6	7.5	0	-	8	0	-	9.8
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	298	5	1	365	4	5	0	1	3	0	9
Future Vol, veh/h	13	298	5	1	365	4	5	0	1	3	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	343	6	1	420	5	6	0	1	3	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	424	0	0	348	0	0	804	801	345	800	802	422
Stage 1	-	-	-	-	-	-	375	375	-	424	424	-
Stage 2	-	-	-	-	-	-	429	426	-	376	378	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1135	-	-	1211	-	-	301	318	698	303	317	632
Stage 1	-	-	-	-	-	-	646	617	-	608	587	-
Stage 2	-	-	-	-	-	-	604	586	-	645	615	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1135	-	-	1211	-	-	292	313	698	299	312	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	313	-	299	312	-
Stage 1	-	-	-	-	-	-	636	607	-	598	586	-
Stage 2	-	-	-	-	-	-	594	585	-	634	605	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	16.4	12.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	323	1135	-	-	1211	-	-	494
HCM Lane V/C Ratio	0.021	0.013	-	-	0.001	-	-	0.028
HCM Control Delay (s)	16.4	8.2	0	-	8	0	-	12.5
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

APPENDIX E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	99	85	1199	218	158	806
Future Volume (veh/h)	99	85	1199	218	158	806
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	114	0	1378	238	182	926
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	158	141	2247	383	341	2950
Arrive On Green	0.09	0.00	0.74	0.73	0.06	0.83
Sat Flow, veh/h	1774	1583	3118	516	1774	3632
Grp Volume(v), veh/h	114	0	799	817	182	926
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1772	1774	1770
Q Serve(g_s), s	6.9	0.0	23.3	24.4	2.2	6.5
Cycle Q Clear(g_c), s	6.9	0.0	23.3	24.4	2.2	6.5
Prop In Lane	1.00	1.00		0.29	1.00	
Lane Grp Cap(c), veh/h	158	141	1314	1316	341	2950
V/C Ratio(X)	0.72	0.00	0.61	0.62	0.53	0.31
Avail Cap(c_a), veh/h	331	295	1314	1316	437	2950
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	0.0	6.6	6.9	9.5	2.1
Incr Delay (d2), s/veh	6.1	0.0	2.1	2.2	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	11.9	12.7	3.3	3.2
LnGrp Delay(d),s/veh	54.8	0.0	8.7	9.1	10.8	2.3
LnGrp LOS	D		A	A	B	A
Approach Vol, veh/h	114		1616			1108
Approach Delay, s/veh	54.8		8.9			3.7
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		95.7			10.0	85.7		14.3
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		80.0			12.0	64.0		19.5
Max Q Clear Time (g_c+I1), s		8.5			4.2	26.4		8.9
Green Ext Time (p_c), s		19.1			0.3	16.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	85	16	69	25
Maximum Split (%)	77.3%	14.5%	62.7%	22.7%
Minimum Split (s)	23	10	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	6	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	81	81	97	56
End Time (s)	56	97	56	81
Yield/Force Off (s)	51	93	51	75.5
Yield/Force Off 170(s)	51	93	40	63.5
Local Start Time (s)	25	25	41	0
Local Yield (s)	105	37	105	19.5
Local Yield 170(s)	105	37	94	7.5

Intersection Summary

Cycle Length	110
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 56 (51%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	114	98	1629	182	926
v/c Ratio	0.48	0.33	0.71	0.63	0.33
Control Delay	49.9	11.0	15.2	22.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	11.0	15.2	22.8	4.1
Queue Length 50th (ft)	77	0	340	34	73
Queue Length 95th (ft)	121	42	493	109	123
Internal Link Dist (ft)	272		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	329	374	2296	320	2793
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.26	0.71	0.57	0.33

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	218	216	1281	185	180	1456
Future Volume (veh/h)	218	216	1281	185	180	1456
Number	3	18	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	229	94	1348	186	189	1533
Adj No. of Lanes	1	1	2	0	1	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	275	245	2162	296	316	2741
Arrive On Green	0.15	0.15	0.69	0.68	0.06	0.77
Sat Flow, veh/h	1774	1583	3222	428	1774	3632
Grp Volume(v), veh/h	229	94	758	776	189	1533
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1787	1774	1770
Q Serve(g_s), s	15.0	6.4	27.8	28.6	3.3	20.7
Cycle Q Clear(g_c), s	15.0	6.4	27.8	28.6	3.3	20.7
Prop In Lane	1.00	1.00		0.24	1.00	
Lane Grp Cap(c), veh/h	275	245	1223	1235	316	2741
V/C Ratio(X)	0.83	0.38	0.62	0.63	0.60	0.56
Avail Cap(c_a), veh/h	347	310	1223	1235	331	2741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	45.6	10.0	10.2	12.5	5.4
Incr Delay (d2), s/veh	13.1	1.0	2.4	2.4	2.7	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	2.9	14.3	14.7	3.8	10.3
LnGrp Delay(d),s/veh	62.3	46.6	12.4	12.6	15.3	6.2
LnGrp LOS	E	D	B	B	B	A
Approach Vol, veh/h	323		1534			1722
Approach Delay, s/veh	57.7		12.5			7.2
Approach LOS	E		B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		96.9			10.0	86.9		23.1
Change Period (Y+Rc), s		5.0			4.0	5.0		5.5
Max Green Setting (Gmax), s		87.0			7.0	76.0		22.5
Max Q Clear Time (g_c+I1), s		22.7			5.3	30.6		17.0
Green Ext Time (p_c), s		27.9			0.1	24.2		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Phase Number	2	5	6	8
Movement	SBTL	SBL	NBT	WBL
Lead/Lag		Lead	Lag	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	None
Maximum Split (s)	92	11	81	28
Maximum Split (%)	76.7%	9.2%	67.5%	23.3%
Minimum Split (s)	23	10	23	24.5
Yellow Time (s)	3.5	3	3.5	3
All-Red Time (s)	1.5	1	1.5	2.5
Minimum Initial (s)	10	6	10	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			7	7
Flash Dont Walk (s)			11	12
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	33	33	44	5
End Time (s)	5	44	5	33
Yield/Force Off (s)	0	40	0	27.5
Yield/Force Off 170(s)	0	40	109	15.5
Local Start Time (s)	28	28	39	0
Local Yield (s)	115	35	115	22.5
Local Yield 170(s)	115	35	104	10.5

Intersection Summary

Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	75

Offset: 5 (4%), Referenced to phase 2:SBTL and 6:NBT, Start of Red

Splits and Phases: 3: Shields & Lake

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	229	227	1543	189	1533
v/c Ratio	0.76	0.57	0.67	0.73	0.57
Control Delay	63.9	21.5	14.4	28.6	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	21.5	14.4	28.6	7.5
Queue Length 50th (ft)	169	51	368	36	238
Queue Length 95th (ft)	254	131	446	#89	310
Internal Link Dist (ft)	272		465		472
Turn Bay Length (ft)		150		100	
Base Capacity (vph)	346	432	2301	259	2686
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.66	0.53	0.67	0.73	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	60	314	2	1	130	10	1	0	1	10	0	53
Future Vol, veh/h	60	314	2	1	130	10	1	0	1	10	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	69	361	2	1	149	11	1	0	1	11	0	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	161	0	0	363	0	0	688	663	362	658	658	155
Stage 1	-	-	-	-	-	-	500	500	-	157	157	-
Stage 2	-	-	-	-	-	-	188	163	-	501	501	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1418	-	-	1196	-	-	360	382	683	378	384	891
Stage 1	-	-	-	-	-	-	553	543	-	845	768	-
Stage 2	-	-	-	-	-	-	814	763	-	552	543	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1418	-	-	1196	-	-	320	358	683	359	360	891
Mov Cap-2 Maneuver	-	-	-	-	-	-	320	358	-	359	360	-
Stage 1	-	-	-	-	-	-	519	510	-	793	767	-
Stage 2	-	-	-	-	-	-	758	762	-	517	510	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.1	13.3	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	436	1418	-	-	1196	-	-	721
HCM Lane V/C Ratio	0.005	0.049	-	-	0.001	-	-	0.1
HCM Control Delay (s)	13.3	7.7	0	-	8	0	-	10.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.3

Intersection

Int Delay, s/veh 2.1

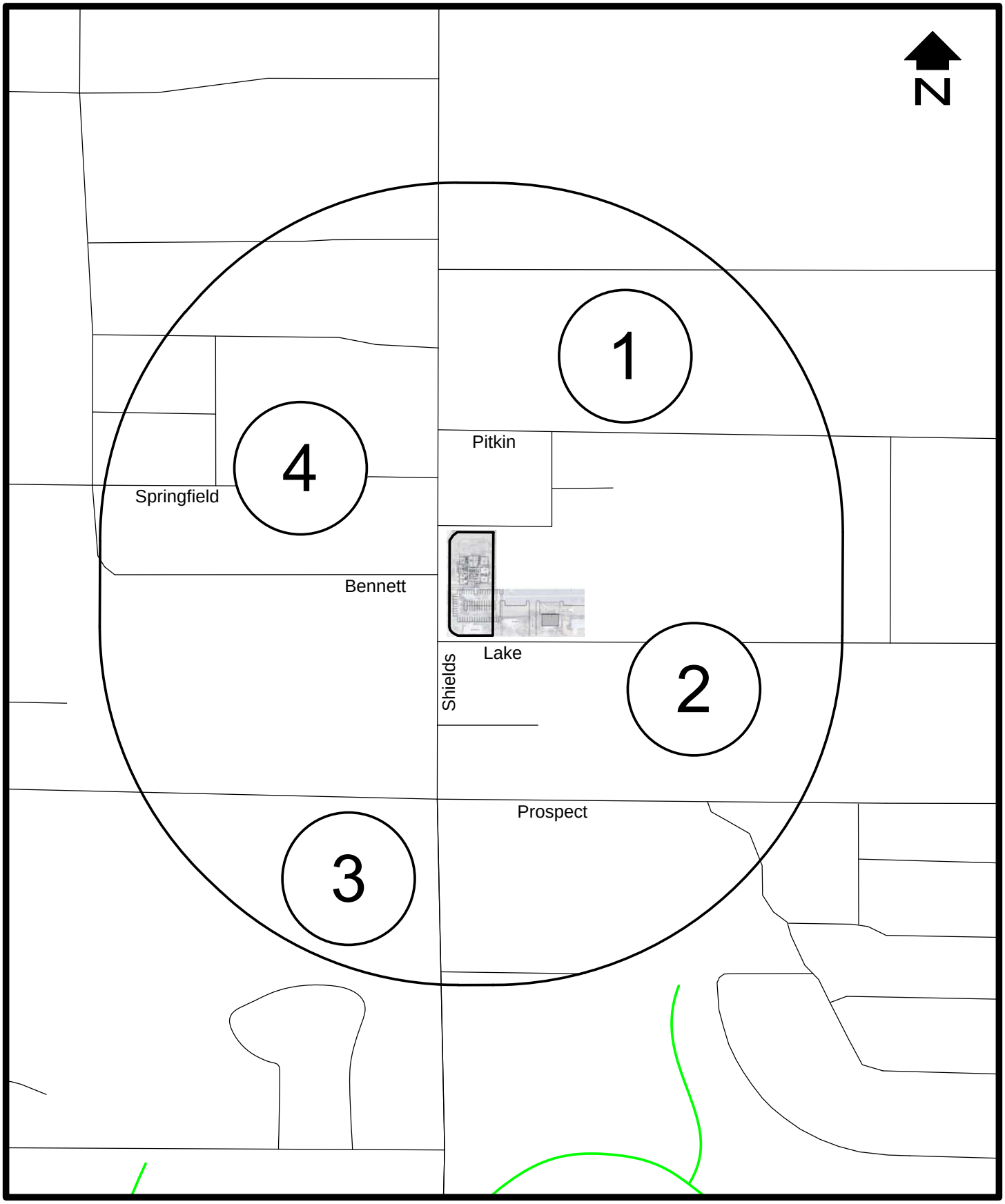
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	62	271	2	1	323	13	3	0	1	13	0	64
Future Vol, veh/h	62	271	2	1	323	13	3	0	1	13	0	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	311	2	1	371	15	3	0	1	15	0	74

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	314	0	0	873	844	313	837	837	379
Stage 1	-	-	-	-	-	-	455	455	-	381	381	-
Stage 2	-	-	-	-	-	-	418	389	-	456	456	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1172	-	-	1246	-	-	271	300	727	286	303	668
Stage 1	-	-	-	-	-	-	585	569	-	641	613	-
Stage 2	-	-	-	-	-	-	612	608	-	584	568	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1172	-	-	1246	-	-	228	278	727	269	281	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	228	278	-	269	281	-
Stage 1	-	-	-	-	-	-	542	527	-	594	612	-
Stage 2	-	-	-	-	-	-	544	607	-	541	527	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.5	0	18.3	13.1
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	275	1172	-	-	1246	-	-	534
HCM Lane V/C Ratio	0.017	0.061	-	-	0.001	-	-	0.166
HCM Control Delay (s)	18.3	8.3	0	-	7.9	0	-	13.1
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.6

APPENDIX F



SCALE: 1"=500'

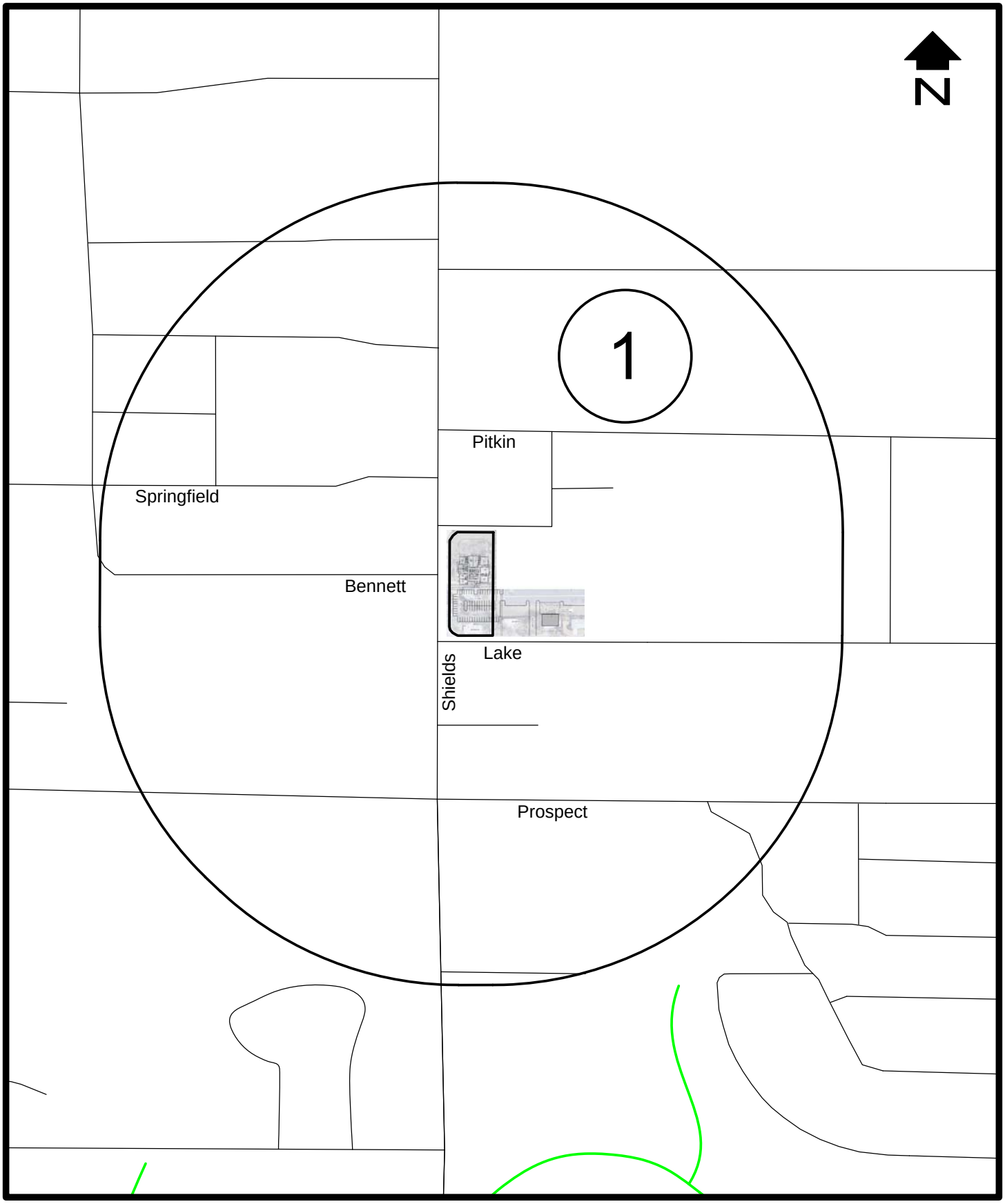
PEDESTRIAN INFLUENCE AREA

DELICH ASSOCIATES

Pedestrian LOS Worksheet

Project Location Classification: Mixed-Use District

	Description of Applicable Destination Area Within 1320'	Destination Area Classification		Level of Service (minimum based on project location classification)				
				Directness	Continuity	Street Crossings	Visual Interest & Amenities	Security
1	CSU Campus	Institutional	Minimum	A	A	B	A	A
			Actual	A	C	A	A	A
			Proposed	A	B	A	A	A
2	Residential uses to the east & southeast of the site	Residential	Minimum	A	A	B	A	A
			Actual	A	D	A	A	A
			Proposed	A	D	A	A	A
3	Commercial uses to the southwest of the site	Commercial	Minimum	A	A	B	A	A
			Actual	A	C	B	A	A
			Proposed	A	C	B	A	A
4	Residential uses to the west of the site	Residential	Minimum	A	A	B	A	A
			Actual	A	C	B	A	A
			Proposed	A	C	B	A	A
5			Minimum					
			Actual					
			Proposed					
6			Minimum					
			Actual					
			Proposed					
7			Minimum					
			Actual					
			Proposed					
8			Minimum					
			Actual					
			Proposed					
9			Minimum					
			Actual					
			Proposed					
10			Minimum					
			Actual					
			Proposed					



SCALE: 1"=500'

BICYCLE INFLUENCE AREA

DELICH ASSOCIATES

Bicycle LOS Worksheet

				Level of Service – Connectivity		
				Minimum	Actual	Proposed
		Base Connectivity:		C	B	B
	Specific connections to priority sites:					
	Description of Applicable Destination Area Within 1320'	Destination Area Classification				
1	CSU Campus	Institutional		C	B	B
2						
3						
4						
5						
6						
7						
8						