CITY OF THORNTON, COLORADO

DESIGN PLANS OF PROPOSED

120th Avenue & Northaven Circle Traffic Signal Design

ADAMS COUNTY, COLORADO

PROJECT NO. SHO M286-050

SUB ACCOUNT NO. 24696

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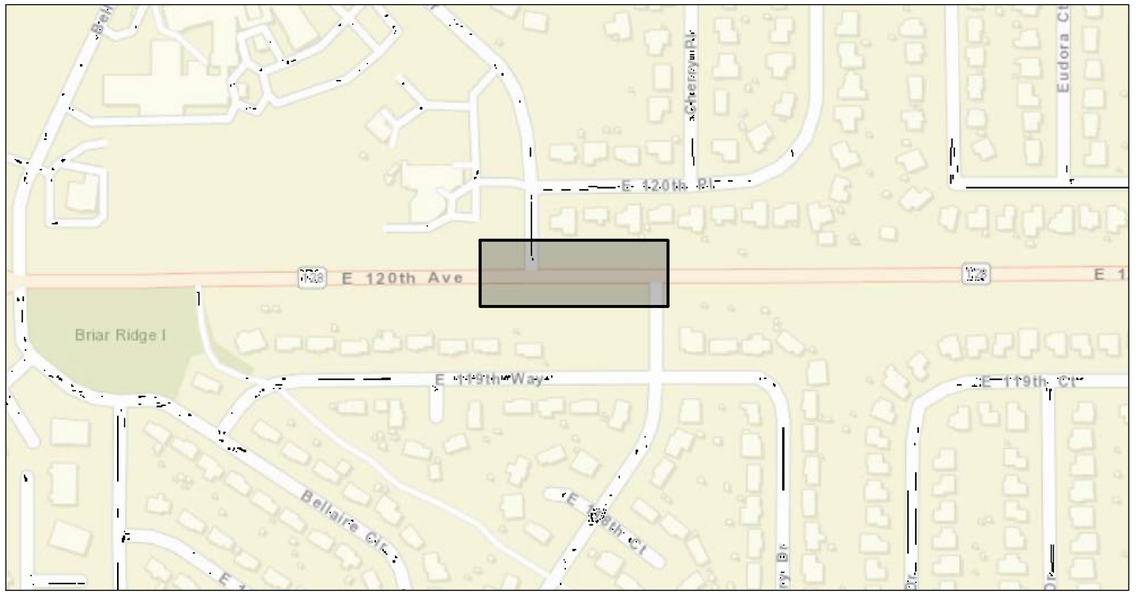

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0 500 1000

SCALE IN FEET

CITY OF THORNTON APPROVALS

CARLOS A. BOTELLO, EIT — PROJECT MANAGER — DATE

MARTA JUNYENT, PE, PTOE — SENIOR CIVIL ENGINEER — DATE

DARRELL E. ALSTON, PE, PTOE — TRAFFIC ENGINEER — DATE

COLORADO LICENSED
DEREK FRANK SCHULER
40125
April 12, 2024
PROFESSIONAL ENGINEER

COLORADO LICENSED
NATHAN W. CLOUSE
58601
4/23/2024
PROFESSIONAL ENGINEER

Utilities

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Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

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12450 WASHINGTON ST.
THORNTON, CO 80241

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120TH & NORTHAVEN SIGNAL DESIGN TITLE SHEET

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: GENERAL
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code

SHO M286-050

24696

Sheet Number 1

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COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 31, 2019

Revised on May 16, 2024

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

THE M&S STANDARD PLANS USED TO DESIGN THIS PROJECT ARE INDICATED BY A MARKED BOX ■, AND WILL BE ATTACHED TO THE PLANS. ALL OTHER M&S STANDARD PLANS ARE STILL ELIGIBLE FOR USE IN CONSTRUCTION IF APPROVED BY AN APPROPRIATE CDOT ENGINEER.

S STANDARD PLANS

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120TH & NORTHAVEN SIGNAL DESIGN STANDARD PLANS LIST

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: GENERAL
Structure Numbers:
Subset Sheets: 2 of 2

Project No./Code
SHO M286-050
24696
Sheet Number 2

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Date	Description	Initials

Project and Land Survey Control Diagram			
Title Sheet			
Project Number:			
Project Location: E. 120TH AVE. AND NORTHAVEN CIR.			
Project Code:	Last Mod. Date	Subset	Sheet No.
	11/02/2023	4.01 to 4.04	4.01

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CITY OF THORNTON
STATE OF COLORADO

PROJECT CONTROL & LAND SURVEY CONTROL DIAGRAM

E. 120th Ave. and Northaven Cir.
Section 31, Township 1 South, Range 67 West &
Section 6, Township 2 South, Range 67 West
of the 6th Principal Meridian
County of Adams

SECTION CORNER

QUARTER AND SIXTEENTH SECTION CORNERS

SET EASEMENT MONUMENT

TEMPORARY EASEMENT POINT

RIGHT OF WAY MARKER

PP PROPERTY PIN

NOAA MARKER

QUARTER, SIXTEENTH, AND SECTION CORNERS (TOPO POINT)

WC WC WITNESS CORNER

BM BENCH MARK

USGS MARKER

LOCAL OR PLSS MONUMENT

SECONDARY CONTROL MONUMENT

ROW RIGHT OF WAY MARKER

N 10.13
E 3.81
EL 0.00
PROJECT CONTROL MONUMENT

N 10.13
E 3.81
EL 0.00
HIGH ACCURACY REFERENCE NETWORK CONTROL MONUMENT

N 10.38
E 3.81
EL 0.00
DENSIFICATION CONTROL MONUMENT

Note: For a complete listing of symbology used within this set ofplans, please refer to the M-100-1 Standard Symbols of the ColoradoDepartment of Transportation M&S Standards Publication. Existing features are shown as screened weight (gray scale).
Proposed or new features are shown as full weight without screening.

General Notes:

1. Date of field survey: June 2023

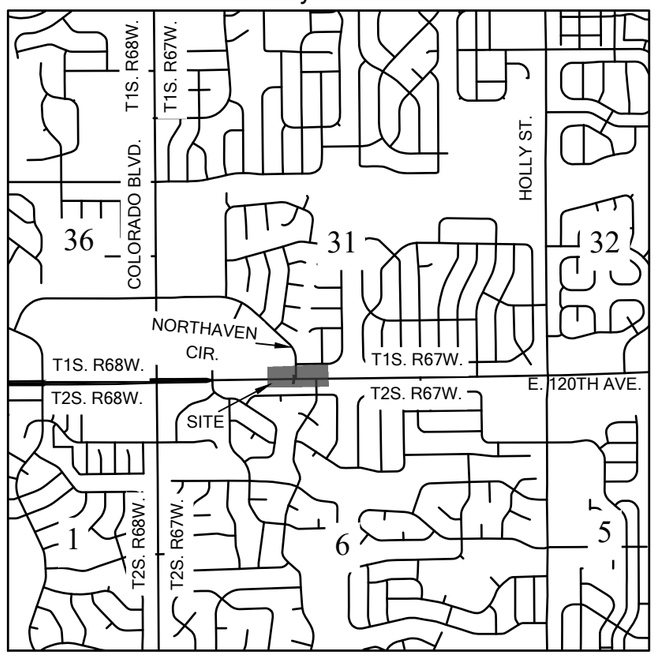
2. This Project Control and Land Survey Control Diagram is prepared for The City of Thornton purposes only. It is not a Boundary Survey, Land Survey Plat or Right of Way Plan. No determination has been made to determine if the found monuments as shown are in their proper position or if they are at the corners they are intended to monument.

3. Title policy, title commitment, and title research are not part of this survey, therefore easements, rights, and restrictions of record were not researched and are not shown on this diagram. The verification of the physical evidence with relation to easements, rights of ways, property boundaries, and restrictions, as described in the instruments of record, were not included in this control survey.

4. This plan set is subject to change and may not be the most current set. It is the user's responsibility to verify with The City of Thornton that this set is the most current. The information contained on the attached drawing is not valid unless this copy bears an original signature of the Professional Land Surveyor hereon named.

5. Refer to the M-629-1 Survey Monuments of the Standard Plans found in The Colorado Department of Transportation, M & S Standards for typical survey monument descriptions.

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



PROJECT LOCATION MAP

0' 1000' 2000' 4000'

SCALE: 1"= 2000'

N

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JEREMY STEWART PEGUES
38447
PROFESSIONAL LAND SURVEYOR
11/2/23

SURVEYOR STATEMENT
(PROJECT & LAND SURVEY CONTROL DIAGRAM)

I, Jeremy S. Pegues, a professional land surveyor licensed in the State of Colorado, do hereby state to the City of Thornton this Project Control and Land Survey Control Diagram was prepared and the field survey it represents was performed under my responsible charge and, based upon my knowledge, information and belief is in accordance with applicable standards of practice defined by Colorado Department of Transportation publications. This statement is not a guaranty or warranty, either expressed or implied.

PLS No. 38447

Basis of Bearings: Bearings used in the calculations of coordinates are based on a grid bearing of N89°10'00"E from Control Point 1 to Control Point 5, both being 2" aluminum caps stamped "TOPOGRAPHIC CONTROL POINT."

The survey data shown hereon was obtained from a Global Navigation Satellite System (GNSS) survey based on a Trimble VRS Network.

Basis of Elevations: Project elevations are based on GNSS derived values (Geoid 18) utilizing the Trimble VRS Network.

COORDINATE DATUM: Project coordinates are modified Colorado State Plane North Zone NAD '83(2011) coordinates. The project seed coordinates are: Control Pont 1 (Northing: 1212029.38, Easting: 3158633.78, and Elevation: 5213.54'.) The combined elevation/scale factor used to modify coordinates is 1.0002720423.

Project Coordinates Northing US Survey Feet = State Plane Coordinate Northing * 1.0002720423 - 329.72.
Project Coordinates Easting US Survey Feet = State Plane Coordinate Easting * 1.0002720423 - 859.28.

All lineal units and project coordinates are U.S. Survey Feet, unless otherwise noted.

SHEET NO.	INDEX OF SHEETS
4.01	(1) Title Sheet
4.02-4.03	(2) Monument Coordinate Tables
4.04	(1) Plan Sheet
	(4) Total Sheets

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Date	Description	Initials

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Project and Land Survey Control Diagram
Monument Coordinate Tables
Project Number:
Project Location: E. 120TH AVE. AND NORTHAVEN CIR.

Project Code:	Last Mod. Date	Subset	Sheet No.
	11/02/2023	4.01 to 4.04	4.02

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PROJECT CONTROL

▲ GEODETIC COORDINATES SUMMMARY TABLE OF SET PROJECT CONTROL

Point No.	Geodetic Coordinates NAD-83(11) (CORS)		Elip Height (NAVD88)(ft)	NAD 83(11) Zone 0501		Description
	Latitude (N)	Longitude (W)		SP Northing(ft)	SP Easting(ft)	
1	39° 54' 50.44083"	104° 56 '04.09425"	5155.88	1212029.38	3158633.78	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"
3	39 °54' 49.72456"	104° 56' 04.19829"	5156.33	1211956.85	3158626.13	2" ALUMINUM CAP STAMPED "TOPOGGRAPHIC CONTROL POINT"
5	39°54'50.49189"	104°55'56.39883"	5156.48	1212038.38	3159233.35	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"
7	39° 54' 49.67544"	104° 55' 59.24560"	5156.74	1211954.35	3159012.06	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"

▲ SUMMARY TABLE OF SET CONTROL - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Elevation (ft)	Description
1	1212029.38	3158633.78	5213.54	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"
3	1211956.83	3158626.13	5213.98	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"
5	1212038.38	3159233.51	5214.17	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"
7	1211954.32	3159012.17	5214.41	2" ALUMINUM CAP STAMPED "TOPOGRAPHIC CONTROL POINT"

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Project and Land Survey Control Diagram
Monument Coordinate Tables
Project Number:
Project Location: E. 120TH AVE. AND NORTHAVEN CIR.

Project Code:	Last Mod. Date	Subset	Sheet No.
	11/02/2023	4.01 to 4.04	4.03

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BOUNDARY EVIDENCE

XX

FOUND ALIQUOT CORNERS TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

Point No.	Northing(ft)	Easting(ft)	Description
12	1212003.51	3159585.47	SOUTH QUARTER CORNER, S31, T1S, R67W, 6TH P.M. - FOUND 3" ALUMINUM CAP, ILLEGIBLE
61	1211966.10	3157011.01	SOUTHWEST CORNER, S31, T1S, R67W, 6TH P.M. - FOUND 3-1/4" ALUMINUM CAP STAMPED IN PART, "COLO DEPT OF TRANSPORTATION PLS NO 13225"

FOUND PROPERTY EVIDENCE TABULATION - PROJECT SPECIFIC COORDINATES (U.S. FEET)

PP

Point No.	Project Coordinates		Description
	Northing(ft)	Easting(ft)	
11	1211952.62	3159516.49	1" YELLOW PLASTIC CAP, ILLEGIBLE
14	1212174.52	3158954.18	FOUND CUT X IN WALK
16	1212177.56	3159161.26	FOUND CUT X IN WALK
17	1212178.56	3159226.22	FOUND CUT X IN WALK
18	1212180.90	3159295.27	FOUND CUT X IN WALK
33	1211804.98	3158881.34	FOUND CUT X IN WALK
34	1211764.69	3158859.43	FOUND CUT X IN WALK
35	1211803.67	3158803.06	FOUND CUT X IN WALK
36	1211763.47	3158780.52	FOUND CUT X IN WALK
37	1211802.45	3158719.67	FOUND CUT X IN WALK
38	1211801.44	3158649.69	FOUND CUT X IN WALK
39	1211800.39	3158579.63	FOUND CUT X IN WALK
48	1211765.83	3158930.80	FOUND CUT X IN WALK
49	1211766.75	3159002.20	FOUND CUT X IN WALK
50	1211770.72	3159267.00	FOUND CUT X IN WALK
51	1211771.48	3159316.31	FOUND CUT X IN WALK
57	1211819.40	3159370.83	FOUND CUT X IN WALK
58	1211810.94	3159299.72	FOUND CUT X IN WALK
59	1211810.01	3159229.83	FOUND CUT X IN WALK
60	1212036.17	3158374.76	FOUND 1" YELLOW PLASTIC CAP STAMPED, "LS27935"
4333	1211939.83	3158647.64	1" YPC STAMPED J&L ASSOC. PLS 16133

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N

0' 50' 100'

SCALE: 1"= 100'

Project and Land Survey Control Diagram

Plan Sheet

Project Number:

Project Location: E. 120TH AVE. AND NORTHAVEN CIR.

Project Code:	Last Mod. Date	Subset	Sheet No.
	11/02/2023	4.01 to 4.04	4.04

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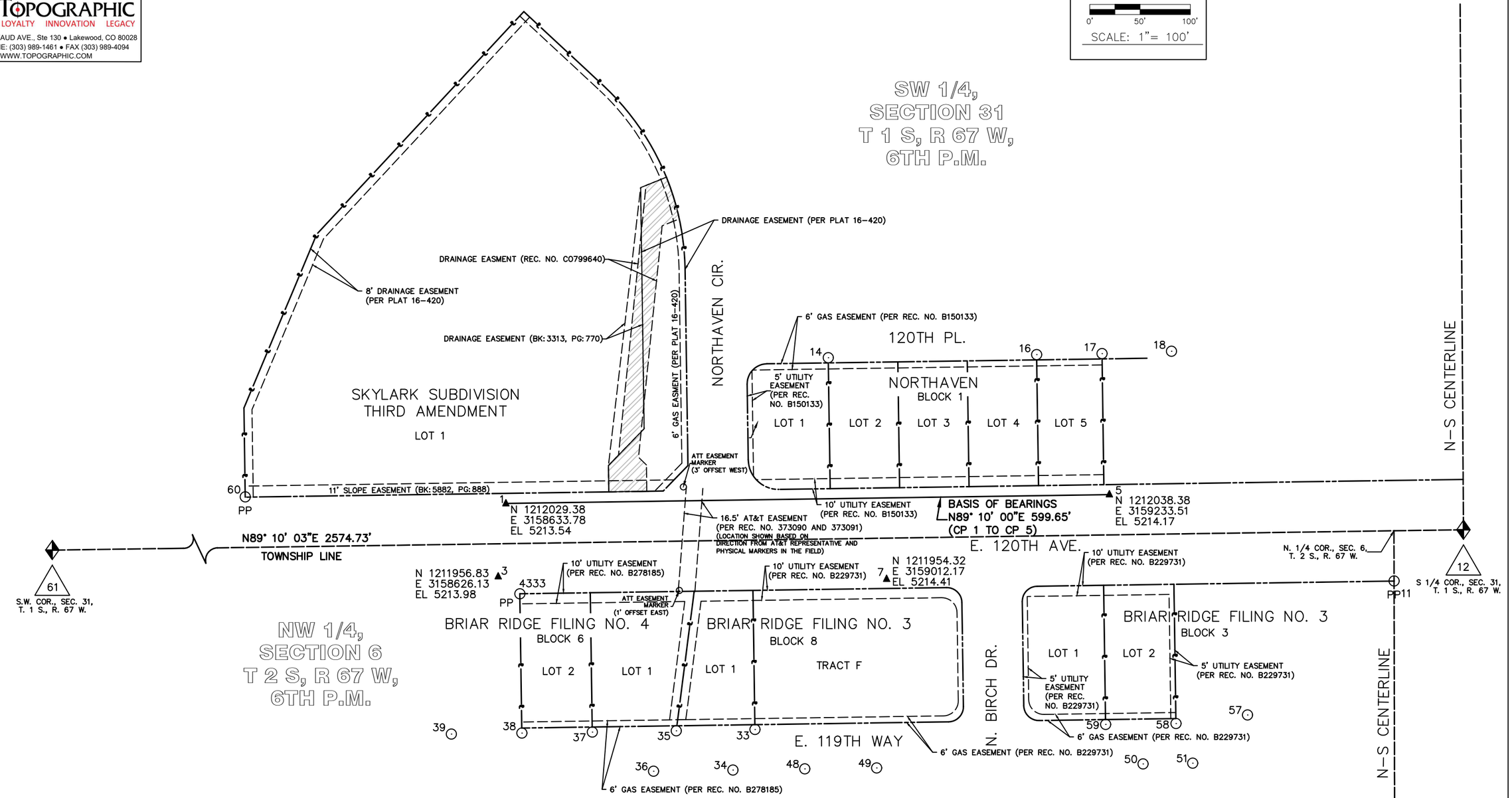

GENERAL CONSTRUCTION NOTES

1. The contractor shall be solely and completely responsible for conditions at and adjacent to the job site;including, safety of persons and property during the performance of work. This requirement shall apply continuously and not be limited to normal working hours. The City construction review of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures in, on,or near the construction site.

2. 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 contractor to verify the existence and location of all underground utilities along the route of the work. Location of existing utilities shall be verified by contractor prior to date of construction. For information contact: Utility Notification Center of Colorado (UNCC) – 1–800–922–1987. It is the Contractor's responsibility to field verify size and horizontal and vertical locations of existing facilities prior to construction and notify the City of any discrepancies.

3. Materials and workmanship shall conform to the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements and work shall be subject to inspection and approval by authorized City of Thornton personnel.

4. All trenches shall be adequately supported and the safety of workers provided for as required by the most recent Occupational Safety and Health Administration (OSHA) "Safety and Health Regulations for Construction." These regulations are described in Subpart P, Part 1926 of the Code of Federal Regulations. Sheeting and shoring shall be utilized where necessary to prevent any excessive widening or sloughing of the trench which may be detrimental to human safety, to the pipe being placed, to trees, or to any existing structure where excavations are made under severe water conditions. The contractor may be required to use an approved piling instead of sheeting and shoring.

5. The Contractor shall furnish the engineer the "as constructed" locations of facilities installed and, this in turn, shall be submitted to the City of Thornton on as–built mylar drawings and electronic files prepared by the Engineer.

6. The Contractor shall be responsible for cleaning nearby public streets of mud or debris due to construction activity initiated by said contractor on a daily basis or as otherwise directed by authorized City personnel.

7. Prior to the beginning of work, a preconstruction conference shall be held between the City, the Contractor who is scheduled to perform the work, the designated on–site field representative, the consulting engineer or landscape professional, and any other entities involved in the construction.

8. Development phasing of any project must be shown on the construction plans and made a part of the application procedure. No phasing shall be permitted unless this requirement has been adhered to.

9. The Contractor shall obtain a Traffic Control Permit from the City of Thornton Traffic Division and a construction permit from the City of Thornton Engineering Services division. Construction Permits can be applied for online free of charge by using the "CIP Projects" link. Contact Claire Dreesen at 720–977–6247 for additional information.

10. No work shall begin until the installing Contractor is in possession of an approved set of plans and the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements, and all necessary permits for the Improvements has been issued by the City. Development Engineering's approval shall be for general conformity to the utility specifications and shall not constitute blanket approval of all dimensions, quantities and details of the material or equipment shown. Nor shall such approval relieve the Contractor, consulting engineer, or landscape architect of their responsibility for errors contained in the drawings. A copy of the approved plans and all permits shall be onsite at all times.

11. The Contractor shall furnish reasonable aid and assistance required by Development Engineering for the proper examination of the materials and work. Work shall be performed in accordance with accepted workmanship practices and the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements. Any work not accepted by Development Engineering shall be redone until compliance with these standards is achieved. Instructions given by Development Engineering relating to quality of materials and workmanship must be obeyed at once by the Contractor. Development Engineering shall not supervise set out work, or give line and grade stakes.

12. The materials used in projects shall be new and subject to the inspection and approval of the Coordinator at all times. The Coordinator has the right to perform any testing deemed necessary to ensure compliance of the material with these standards. No material shall be used before being inspected and approved by the Coordinator. Failure or neglect on the part of the Coordinator to condemn or reject inferior materials or work shall not be construed to imply their acceptance should their inferiority become evident at any time prior to final acceptance of the work. Coordinators have the authority to reject defective or inferior materials and/or defective workmanship and to suspend work until such time as the Contractor shall correct the discrepancies in question.

13. Whenever defective materials and work are rejected, the Contractor shall promptly remove such defective materials and construction from the job site and replace all defective portions to the satisfaction of Development Engineering. In the event the Contractor fails to remove rejected items from the job site within a reasonable length of time, Development Engineering may arrange for such removal at the expense of the Contractor.

14. Inspection shall not relieve the Contractor from any obligation to perform the work strictly in accordance with the plans and specifications or any modifications thereof. Work not so constructed shall be removed and corrected by the Contractor at his sole expense, whenever so ordered by Development Engineering, without reference to any previous error or oversight in inspection.

15. Except in cases of emergency, maintenance, or protection of work already completed, no work shall be allowed between the hours of 7 p.m. and 7 a.m.; nor on Saturday, Sunday, or legal holidays unless approved by the Project Manager.

16. The work shall be surveyed and staked under the supervision of a licensed Land Surveyor in accordance with the approved plans.

17. If irrigation ditches are involved, an approval block for the ditch company shall be provided.

18. If a foundation underdrain system is installed in the public right–of–way, the following statement shall be included in the as–built drawings:

    "The foundation underdrain system is the responsibility of the Contractor or its assigns. The City is not responsible for the maintenance or repair of said system."

19. Compaction of all trenches must be attained and compaction test results submitted to the engineer and the City of Thornton prior to final acceptance.

20. All work, including correction work, shall be inspected by a City Representative who shall have the authority to halt construction when standard construction practices are not being adhered to.

21. The Contractor shall regularly patrol the public lands adjacent to the development to remove construction debris and keep the site clean and safe.

22. Natural vegetation shall be retained and protected wherever possible. Exposure of soil to erosion by removal or disturbance of vegetation shall be limited to the area required for immediate construction operation and for the shortest practical period of time.

23. Topsoil shall be stockpiled to the extent practicable on the site for use on areas to be revegetated. Any and all stockpiles shall be located and and proper measures taken to control erosion and sediment movement.

24. At all times, the property shall be maintained and/or watered to prevent wind–caused erosion. Earthwork operations shall be discontinued when dust significantly impacts adjacent property. If earthwork is complete or discontinued and dust from the site continues to create problems, the Contractor shall immediately institute mitigative measures and shall correct damage to adjacent property.

25. Permanent slopes shall not exceed 4:1 (H:V) in areas to be seeded or sodded. Retaining walls shall be reviewed and approved by separate application to the Development Engineering Division.

26. This erosion and sediment control plan has been submitted to the City of Thornton and is in general conformance with the City's erosion control standards. Additional erosion and sediment control measure may be required of the owner and his or her agents due to unforeseen erosion problem or if the proposed erosion control measures do not function as intended. The requirements of this erosion control plan and the obligation of the landowner shall run with the land until such time as the erosion control plan is properly completed, officially modified, or voided.

27. During construction, care must be taken to avoid any ground water, storm water, construction debris, soil, or any other foreign materials from entering any active City of Thornton sewer. The use of the sanitary sewer system for the purposes of dewatering is strictly prohibited.

28. All construction activities dewatering must comply with the State of Colorado permitting process for "Stormwater Discharges Associated With Construction Activity." For information, please contact Colorado Department of Health, Water Quality Control Division.

29. After any overlay of an existing roadway, where City utilities are present, the Contractor shall open all manholes and valve boxes following the paving operation to ensure that manhole and valves were not paved over nor filled with asphalt.

30. When an existing asphalt street is 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 Thornton's Construction Coordinator' before any cuts are made. Patching shall be done in conformance with the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements. The finished patch shall blend 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 areas, may be required. The determination of need for a complete overlay shall be made by the Development Engineering Manager.

31. All damaged existing curb, gutter, and sidewalk shall be repaired prior to acceptance of completed improvements.

32. All curb returns within public right–of–way shall be constructed with sidewalk ramps in accordance with the City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements. All sidewalk ramps shall include a truncated dome detectable warning pattern as shown on the detail sheets.

33. The contractor shall provide, erect and maintain proper traffic control devices until the site is open to traffic. The Contractor shall submit a traffic control plan to the City of Thornton for approval prior to construction.

34. Repair of any damage to existing improvements or landscaping is the responsibility of the contractor.

35. Any concrete and/or sidewalk that is cut and/or potholed the entire panel shall be replaced.

FOR CONSTRUCTION

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RockSol Consulting Group, Inc.
12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

City of Thornton
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
No Revisions:
Revised:
Void:

120TH & NORTHAVEN SIGNAL DESIGN GENERAL NOTES

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: NOTES
Structure Numbers:
Subset Sheets: 1 of 3

Project No./Code
SHO M286–050
24696
Sheet Number 7

TRAFFIC SIGNAL NOTES

1. Conduit, Pole, Pull Boxes and Controller locations are approximate. Exact locations shall be marked by the Contractor and approved in the field by the City.
2. All existing utility locations are approximate. The Contractor shall field verify the exact location of all utilities before commencing work and agrees to be fully responsible for any damages which may occur by the Contractor's failure to exactly locate and preserve any and all underground utilities.
3. Except as modified in the plans, all work shall be in accordance with the City of Thornton's Standards and Specifications for the Design and Construction of Public and Private Improvements. The Contractor shall contact the Project Manager a minimum of 48 hours and a maximum of 96 hours prior to starting traffic signal construction.
4. The Contractor shall submit a traffic control plan for construction to the City with the permit application. A public right of way work permit will not be issued without an approved traffic control permit for traffic control during construction.
5. Upon completion of work, the Contractor shall submit record drawings, corrected plans and any additional data required by the City showing in detail all construction changes.
6. All signal heads shall be polycarbonate type and black in color.
7. All signal indications and luminaires shall be approved LED type.
8. Cabinet foundations shall be concrete.
9. All signal heads shall be wired separately from the signal head to hand hole above grade at base of signal pole with no overhead splices.
10. All new signal heads and all reset signal heads shall be positioned in the center of the lane.
11. Internally illuminated street name signs shall be approved LED type and mounted on the mast arm at a minimum of two (2) feet from the signal pole.
12. When the project is complete, two (2) keys for each controller cabinet and Police Panel shall be delivered to the Development Engineering Manager. The Instruction Manual for the controller shall be left inside the controller cabinet.
13. All salvaged signal equipment shall be delivered to the Infrastructure Maintenance Center, 12450 N. Washington Street.
14. If an existing traffic signal must be turned off, two (2) weeks minimum notice shall be given the City and arrangements made at the expense of the Contractor for police officers to direct traffic in the intersection.
15. All pedestrian push buttons shall be APS push buttons.

SIGNING NOTES

1. All traffic control signing shall conform to Section 704 of these Standards and Specifications.
2. When sign poles are to be installed in an area that will be surrounded by concrete, an eight (8) inch diameter sleeve shall be installed to provide a space to install the sign pole base.
3. Mounting order of signs on sign pole from top to bottom: Dead End plaques, Street Name signs, other Dead End plaques and Street Name signs shall be mounted using bolts only. All other signs shall be installed with a bolt, washer and nut for the top hole and a drive rivet for the bottom hole.
4. All signs shall be fabricated using 3M Diamond Grade retro–reflective sheeting, or approved equal. All signs shall have a 3M #1160 protective clear overlay (graffiti protection), or approved equal, applied to the face of the sign.
5. All Stop signs and Street Name signs shall be install as per Detail 700–12.
6. All salvaged signs shall be delivered to the Infrastructure Maintenance Center, 12450 N. Washington Street.

PAVEMENT MARKING NOTES

1. All pavement markings shall be field marked and shall be approved in the field by the Project Manager before installation of pavement marking materials.
2. All material shall be installed as per the manufacturer's recommendations and City of Thornton Standards and Specifications for the Design and Construction of Public and Private Improvements.
3. Paint shall not be used for permanent markings.
4. New pavement markings shall be thermoplastic.

EROSION AND SEDIMENT CONTROL NOTES

1. Control Measures shall be installed before any earth disturbing activities commence.
2. The Contractor shall notify the Thornton coordinator once all initial control measures have been installed for an initial inspection at least Forty Eight (48) hours prior to the inspection. Construction activity cannot begin until a passing initial inspection has occurred.
3. Stormwater discharges from construction activities shall not cause, have the reasonable potential to cause, or measurably contribute to exceed any water quality standard.
4. Construction shall be phased in a manner to limit earth disturbing activities (i.e. the entire project site should not be disturbed if construction will only be occurring in one particular section).
5. Sediment caused by accelerated soil erosion shall be removed from runoff water before it leaves the construction site.
6. Bulk storage structures for petroleum products and any other chemicals shall have secondary containment or equivalent protection to contain all spills and prevent any spilled material from entering the MS4 or State waters.
7. A copy of the SWMP and Erosion and Sediment Control (ESC) Plans must be available at all times on the construction site unless otherwise approved by CDPHE or Thornton.
8. The SWMP and EC plan shall be continuously updated to reflect new or revised Control Measures (CM) due to changes in design, construction, operation, or maintenance of the construction site. Updates must be made within 72–hours following the change in Control Measures.
9. The Contractor shall inspect the construction site (including all Control Measures, storage containers, and construction equipment) at a minimum of every 7 calendar days or every 14 calendar days. If on the 14 day frequency a 24–hour post storm inspection must be conducted after a precipitation event or snow melt. Inspections shall continue until an Inactivation Notice is filed with CDPHE.
10. The Contractor shall keep a record of all inspections on site and available for review by CDPHE or City staff. Inspection reports must identify any incidents of non–compliance with the terms and conditions of the Permit.
11. Control Measures requiring maintenance or adjustment shall be repaired immediately after observation of the failing Control Measure.
12. Silt fence patching: patching is only allowed on the top half of the fence. Not more than two (2) patches per section of fence. Silt fence with holes or deterioration on the lower half of the fence must be replaced. Repair typically involves replacing the silt fence to maintain the CMs effectiveness to drain slowly and function as originally designed.
13. For all instances of noncompliance based on environmental hazards and chemical spills and releases, all needed information must be provided orally to CDPHE spill reporting line (24–hour number for environmental hazards and chemical spills and releases: 1–877–518–5608) within 24–hours from the time the Contractor becomes aware of the circumstances.
14. Straw bales shall not be used for primary erosion or sediment control (i.e. straw bales may be used for reinforcement behind another BMP such as silt fence).
15. Control measures referred to as "Cutback Curb" are not allowed. The cutback curb may become ineffective and may also compromise the integrity of the curb and in most cases does not provide any water quality benefit for filtering out sediment.
16. Inlet Protection and Vegetative Buffer Control Measures shall not be used as standalone CMs. These methods must be utilized with at least one additional CM.
17. Control Measures intended for sheet flow sediment runoff shall be placed parallel to the slope.
18. All Control Measures shall be cleaned when sediment levels accumulate to half the design of the CM unless otherwise specified.
19. A Vehicle Tracking Control (VTC) shall be placed at all entrances/exits from the site as well as any egress from exposed dirt to paved areas to prevent track–out onto streets. If track–out does occur, the Contractor shall immediately sweep the street of debris. Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.
20. For residential projects, back of curb protection is required along all interior lots.
21. All sediment collected in Control Measures shall be removed upon initial acceptance.
22. Wind Erosion and Dust Control Measures must be utilized to minimize airborne particulate dust. Control Measures may include minimizing disturbed areas, watering, and/or providing temporary stabilization.
23. Permanent erosion control measures for slopes, channels, ditches, or any disturbed land area shall be completed within 14 calendar days after final grading or the final earth disturbance has been completed. When it is not possible to permanently stabilize a disturbed area after an earth disturbance has been completed or where significant earth disturbance activity ceases, temporary soil erosion control measures shall be implemented within 14 calendar days. Temporary erosion control measures shall be maintained until permanent soil erosion measures are implemented.
24. Final stabilization has been achieved when all earth disturbing activities at the site have been completed, and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre–disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.
25. All temporary Control Measures shall be removed from the site upon submitting the Inactivation Notice.
26. All site wastes (including trash and building materials) must be properly managed to prevent potential pollution discharges to the MS4 or State waters.
27. Street repair operations such as rotor milling, slurry seal and chip seal. The minimum CMs required are; inlet protection, curb socks and street sweeping. This list is not intended to be all–inclusive, but is intended to identify the general notes identified by the City to be included as part of the ESC plans/SWMP for compliance with the City's stormwater management requirements for construction activities.

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RockSol Consulting Group, Inc.
12076 Grant Street
Thornton, CO 80241
Ph: (303) 962–9300
Fax: (303) 962–9350

Sheet Revisions

Date	Comments	Initials

City of Thornton
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:
Revised:
Void:

120TH & NORTHAVEN SIGNAL DESIGN GENERAL NOTES

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: NOTES
Structure Numbers:
Subset Sheets: 2 of 3

Project No./Code

SHO M286–050
24696
Sheet Number 8

HAZARDOUS MATERIALS NOTES

1. Workers shall be alert during excavations for any visual or olfactory signs of contamination. If odor or contaminated soil and/or groundwater is encountered, work will stop immediately, and the procedures outlined in the CDOT Specification 250 (Environmental Health & Safety Management) shall be followed.

2. In the event that suspected asbestos containing material (ACM) is encountered, including with buried materials, the Contractor will follow CDOT Specification 250.07 – Asbestos–Containing Material Management, as well as CDOT regulated Asbestos–Contaminated Soil Management Standard Operating Procedure. Additionally, depending on the tyoe of ACM, this material must also be abated in accordance with either Section 5.5 of the Solid Waste Regulations, or Regulation No. 8 of the Air Quality Control Commission Regulations.

3. Prior to removal of any pole/pad–mounted transformers, coordination with the appropriate utility owner is required. The utility company will be responsible for the handling and disposal of any transformers exhibiting PCBs presence, if any, in accordance with local, state, and federal regulations.

PALEONTOLOGICAL & ARCHEOLOGY NOTES

1. If any paleontological or archeological resources are uncovered during the project construction all work shall be stopped and the following shall be notified immediately for further direction and/or for a site visit.
   Paleo: Nicole Peavey 303–757–9632 nicole.peavey@state.co.us
   Arch: Greg Wolff 303–757–9158 greg.wolff@state.co.us

AIR QUALITY NOTES

1. The Contractor shall ascertain if an Air Pollution Emission Notice (APEN) is required to be submitted to the Colorado Department of Public Health and Environment's (CDPHE) Air Pollution Control Division (APCD) for this operation. The Contractor shall be responsible for filing the APEN and obtaining said permit, if required. The Contractor shall comply with all conditions of the APEN and any permits issued by APCD for this project. The Contractor shall control fugitive dust through implementation of Sections 107.24, 208, 209, and 250 of CDOT's Standard Specifications for Road and Bridge Construction, and applicable CDPHE requirements. The following best management practices shall be implemented during construction:

   - Maintain engines and exhaust systems on construction equipment and vehicles in good working order. Prohibit tampering with equipment to increase horsepower or disabling emission control devices. Equipment is subject to inspection by the project Engineer to ensure maintenance is conducted regularly.
   - Prohibit unnecessary idling of construction equipment and vehicles.
   - Locate staging areas and stationary construction equipment/diesel engines as far as possible from residences and other sensitive receptors.
   - Cover, wet, compact, or use chemical stabilization to control dust from disturbed areas and excavated materials during construction. Minimize disturbed areas, particularly during dry weather conditions, and use wind barriers as appropriate.
   - Control soil/sediment at points of ingress/egress and use vacuum street sweepers to remove soil tracked onto adjacent roadways.

2. All unpaved roads and other disturbed surface areas on site must be watered as necessary to prevent off–property transport of visible fugitive particulate emissions.

3. Vehicle speed on all unpaved roads and disturbed areas shall not exceed a maximum of 30 mph. Speed limit signs shall be posted.

4. No earthwork activities shall be performed when the wind speed exceeds 30 miles per hour.

5. All disturbed surface areas shall be revegetated within one year and according to the information submitted by the applicant with the permit application.

6. Gravel entryways shall be utilized to prevent mud and dirt carryout onto paved surfaces. Any mud and dirt carryout onto paved surfaces shall be cleaned up daily.

MIGRATORY BIRDS NOTES

1. Migratory Birds may nest on structures and/or vegetation within the project area. The Contractor shall conduct all work in a manner that does not result in the taking of migratory bird protected by the Migratory Bird Treaty Act (MBTA). If work on structures or vegetation removal will occur during the primary breeding season, April 1 to August 31, CDOT's Revision of Section 240 Project Special Revision shall be followed, Including pre–construction nest surveys and removal of inactive nests (no eggs or young) from structures while under construction. No work shall occur within 50 feet of an active nest, at any time, unless the Contractor receives written approval from the Project Engineer.

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RockSol Consulting Group, Inc.
12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

City of Thornton
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

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120TH & NORTHAVEN SIGNAL DESIGN
GENERAL NOTES

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: NOTES
Structure Numbers
Subset Sheets: 3 of 3

Project No./Code
SHO M286–050
24696
Sheet Number 9

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
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			202-00009	Tree Trimming	LS	1				1	
			202-00200	Removal of Sidewalk	SY	21				21	
			202-00250	Removal of Pavement Marking	SF	14				14	
			203-01597	Potholing	HOUR	40				40	
			208-00035	Aggregate Bag	LF	60				60	
			208-00046	Pre-Fabricated Concrete Washout Structure (Type I)	EACH	1				1	
			208-00053	Storm Drain Inlet Protection (Type I) (84 Inch)	EACH	3				3	
			208-00106	Sweeping (Sediment Removal)	HOUR	24				24	
			212-01200	Landscape Restoration	LS	1				1	
			217-00020	Herbicide Treatment	HOUR	24				24	
			240-00000	Wildlife Biologist	HOUR	24				24	
			607-11525	Fence (Plastic)	LF	50				50	
			608-00006	Concrete Sidewalk (6 Inch)	SY	16				16	
			609-21020	Curb and Gutter Type 2 (Section II-B)	LF	19				19	
			613-00206	2 Inch Electrical Conduit (Bored)	LF	416				416	
			613-00306	3 Inch Electrical Conduit (Bored)	LF	700				700	
			613-07023	Pull Box (24"x36"24")	EACH	3				3	
			613-10000	Wiring	LS	1				1	
			613-80130	Service Meter Cabinet	EACH	1				1	
			614-00011	Sign Panel (Class 1)	SF	14				14	

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
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			614-10130	Illuminated Sign	EACH	3				3	
			614-70118	Pedestrian Signal Face (18)	EACH	2				2	
			614-70336	Traffic Signal Face (12-12-12)	EACH	9				9	
			614-70448	Traffic Signal Face (12-12-12-12)	EACH	2				2	
			614-72860	Pedestrian Push Button	EACH	2				2	
			614-72863	Pedestrian Push Button Post Assembly - 5 Foot	EACH	1				1	
			614-72864	Fire Preemption Unit	EACH	1				1	
			614-72886	Intersection Detection System (Camera)	EACH	3				3	
			614-82011	Traffic Signal-Light Pole Steel (1-40 Foot Mast Arm) w/ Lum. Ext. Arm (Install Only)	EACH	1				1	
			614-82020	Traffic Signal-Light Pole Steel (2-45 Foot Mast Arm)w/ Lum. Ext. Arm (Install Only)	EACH	1				1	
			614-84100	Traffic Signal Pedestal Pole Aluminum - 15 Foot	EACH	1				1	
			620-00020	Sanitary Facility	EACH	1				1	
			625-00000	Construction Surveying	LS	1				1	
			626-00000	Mobilization	LS	1				1	
			627-00002	Thermoplastic Pavement Marking	SF	107				107	
			627-30405	Preformed Thermoplastic Pavement Marking (Word-Symbol)	SF	32				32	
			627-30410	Preformed Thermoplastic Pavement Marking (Xwalk-Stop Line)	SF	320				320	
			630-00000	Flagging	HOUR	300				300	
			630-00003	Uniformed Traffic Control	HOUR	48				48	
			630-00007	Traffic Control Inspection	DAY	19				19	

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RockSol Consulting Group, Inc.
12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

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TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed

No Revisions:

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120TH & NORTHAVEN SIGNAL DESIGN
SUMMARY OF APPOXIMATE QUANTITIES

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: SAQ
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code

SHO M286-050

24696

Sheet Number 10

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INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY				PROJECT TOTALS	
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			630-00012	Traffic Control Management	DAY	45				45	
			630-80341	Construction Traffic Sign (Panel Size A)	EACH	32				32	
			630-80350	Vertical Panel	EACH	25				25	
			630-80355	Portable Message Sign Panel	EACH	2				2	
			630-80356	Advanced Warning Sequencing Arrow Panel (A Type)	EACH	2				2	
			630-80360	Drum Channelizing Device	EACH	25				25	
			630-80380	Traffic Cone	EACH	50				50	
			700-70009	F/A Minor Contract Revisions	FA	1				1	
			700-70101	F/A Relocate Irrigation Lateral	FA	1				1	
			700-70380	F/A Erosion Conrol	FA	1				1	

FOR CONSTRUCTION

Plot Date=2/16/2024 12:27 PM Plotted By: Sarah Hemler
R:\Q-PROJECTS\ACTIVE PROJECTS\7650_THORNTON 120TH AT NORTHAVEN TRAFFIC SIGNAL DESIGN\800_COMPUTER DESIGN FILES\802_SHEET FILES\SAQ-001 SUMMARY OF APPROXIMATE QUANTITIES.DWG

All seals for this set of drawings are applied to the cover page(s)

Print Date: 2/16/2024
File Name: SAQ-001 SUMMARY OF APPROXIMATE QUANTITIES.DWG
Horiz. Scale: N/A Vert. Scale: N/A

RockSol Consulting Group, Inc.
12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

Sheet Revisions

Date	Comments	Initials

City of Thornton
TRAFFIC ENGINEERING DIVISION
12450 WASHINGTON ST.
THORNTON, CO 80241

As Constructed
No Revisions:
Revised:
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120TH & NORTHAVEN SIGNAL DESIGN
SUMMARY OF APPOXIMATE QUANTITIES

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: SAQ
Structure Numbers:
Subset Sheets: 2 of 2

Project No./Code
SHO M286-050
24696
Sheet Number 11

TABULATION OF CONCRETE ITEMS

STATION	REMOVAL OF SIDEWALK	CONCRETE SIDEWALK (6 INCH)	CURB AND GUTTER TYPE 2 (SECTION II-B)	REMARKS
	SY	SY	LF	
NE Corner	7	7		Remove and Replace Concrete Panels to Install Pull Box and Pedestrian Pedestal Pole
S Improvement	14	9	19	Remove Existing Driveway Curb Cut and Replace with Sidewalk and Curb and Gutter
TOTAL	21	16	19	

TABULATION OF PAVEMENT MARKINGS

LOCATION	CENTER LINE	CHANNELIZING	PVMT MARKING		REMOVAL OF PAVEMENT MARKING	REMARKS
	DOUBLE YELLOW 4 INCH	WHITE 8 INCH	WORD SYMBOL	X WALK - STOP LINE		
	LF	LF	SF	SF	SF	
NORTHAVEN CIR.	100	60	32.2	200		
120th Ave. (West of Northaven)				72		
120th Ave. (East of Northaven)				48	14	
TOTAL	100	60	32	320	14	

TABULATION OF SIGNAL ITEMS

PAY ITEM	DESCRIPTION	PAY UNIT	TOTAL QUANTITY	REMARKS
613-00206	2 Inch Electrical Conduit (Bored)	LF	416	
613-00306	3 Inch Electrical Conduit (Bored)	LF	700	
613-07023	Pull Box (24"x36"x24)	EACH	3	
613-10000	Wiring	LS	1	
614-10130	Illuminated Sign	EACH	3	
614-70118	Pedestrian Signal Face (18)	EACH	2	
614-70336	Traffic Signal Face (12-12-12)	EACH	9	
614-70448	Traffic Signal Face (12-12-12-12)	EACH	2	
614-72860	Pedestrian Push Button	EACH	2	
614-72863	Pedestrian Push Button Post Assembly - 5 Foot	EACH	1	
614-72864	Fire Preemption Unit	EACH	1	
614-72886	Intersection Detection System (Camera)	EACH	3	
614-82011	Traffic Signal-Light Pole Steel (1-40 Foot Mast Arm) w/ Lum. Ext. Arm (Install Only)	EACH	1	
614-82020	Traffic Signal-Light Pole Steel (2-45 Foot Mast Arm) w/ Lum. Ext. Arm (Install Only)	EACH	1	
614-84100	Traffic Signal Pedestal Pole Aluminum - 15 Foot	EACH	1	

TABULATION OF SIGNS

SIGN NO.	SIGN CODE	LEGEND	COLOR	TRAVEL DIRECTION	PANEL SIZE	SIGN PANEL CLASS I	REMARKS
					INCHES	SF	
A	D3-1	120th Ave	Green	South	19" x 96"		For information only, included in Tabulation of Signal Items as Illuminated Sign
B	D3-1	Northaven Cir	Green	East & West	19" x 96"		
C	R10-27a	Left Turn Yield on Flashing Yellow Arrow	White	East	30" x 36"	7.50	
D	R3-8LR	Advance Intersection Lane Control	White	South	30" x 30"	6.25	
TOTAL						13.8	

FOR CONSTRUCTION

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12450 WASHINGTON ST.
THORNTON, CO 80241

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120TH & NORTHAVEN SIGNAL DESIGN TABULATIONS

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: TABS
Structure Numbers:
Subset Sheets: 1 of 1

Project No./Code
SHO M286-050
24696
Sheet Number 12

Plot Date:2/13/2024 11:45 AM Plotted By: Sarah Hemler
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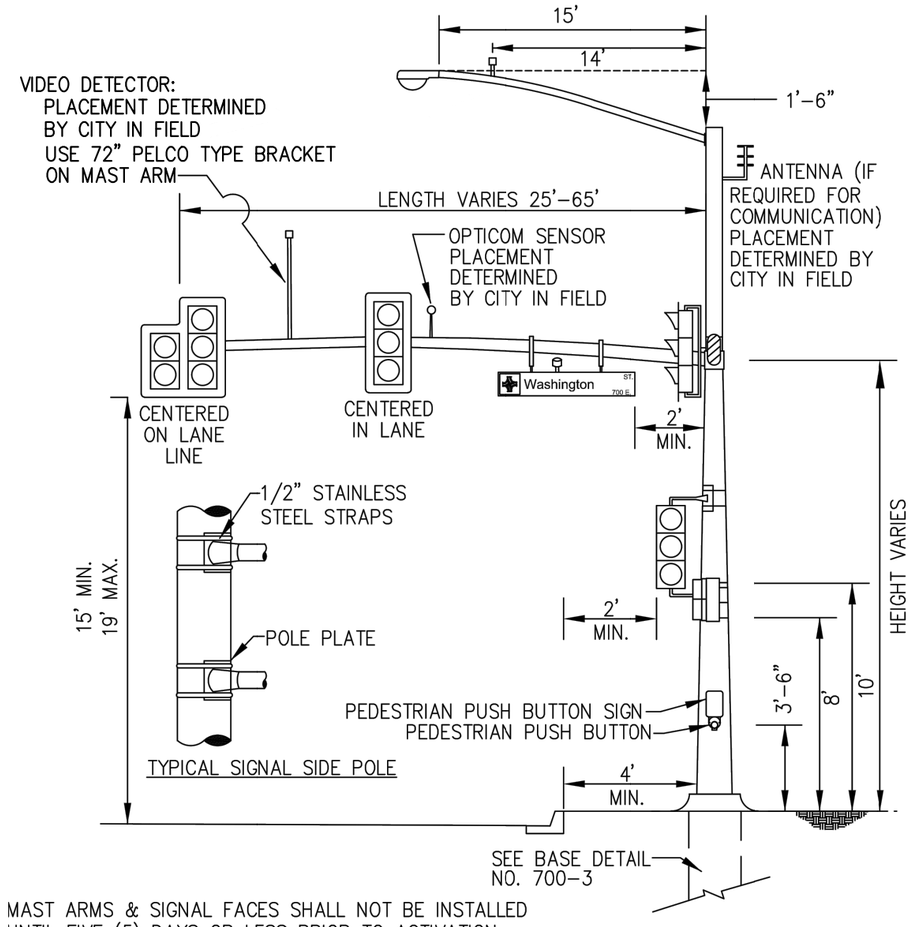
LUMINAIRE EXTENSION, ARM & WIRING TO BE INSTALLED BY CONTRACTOR

LUMINAIRE LIGHT, HOUSING, BULB, ETC., TO BE INSTALLED BY XCEL OR UNITED POWER



MAST ARMS & SIGNAL FACES SHALL NOT BE INSTALLED UNTIL FIVE (5) DAYS OR LESS PRIOR TO ACTIVATION UNLESS APPROVED BY THE TRAFFIC ENGINEER.

N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

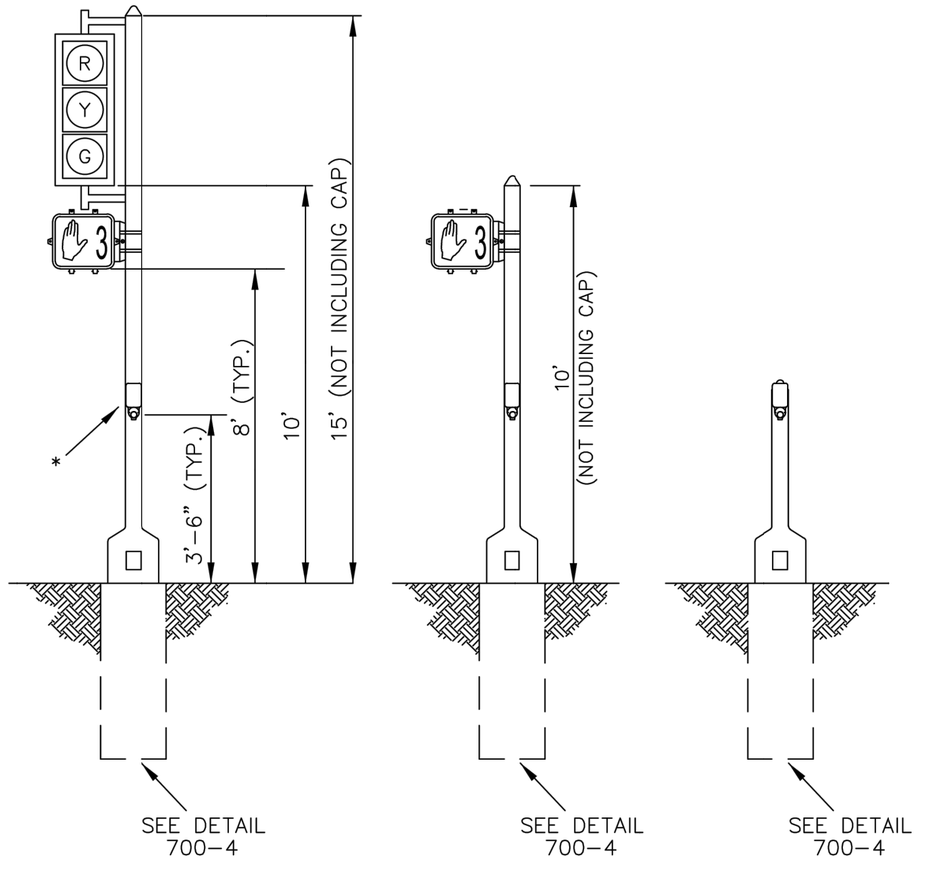
TYPICAL SIGNAL INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010

DRAWING NO. 700-1

* PEDESTRIAN PUSH BUTTON (TYPICAL)
(PUSH BUTTON AND SIGN TO
BE ORIENTED AS DIRECTED
BY THE TRAFFIC ENGINEER)

ALL PEDESTRIAN POLES ARE TO BE MOCHA BROWN IN COLOR



N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL PEDESTRIAN POLE INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010

DRAWING NO. 700-2

FOR CONSTRUCTION

811 Know what's below. Call before you dig.

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12450 WASHINGTON ST.
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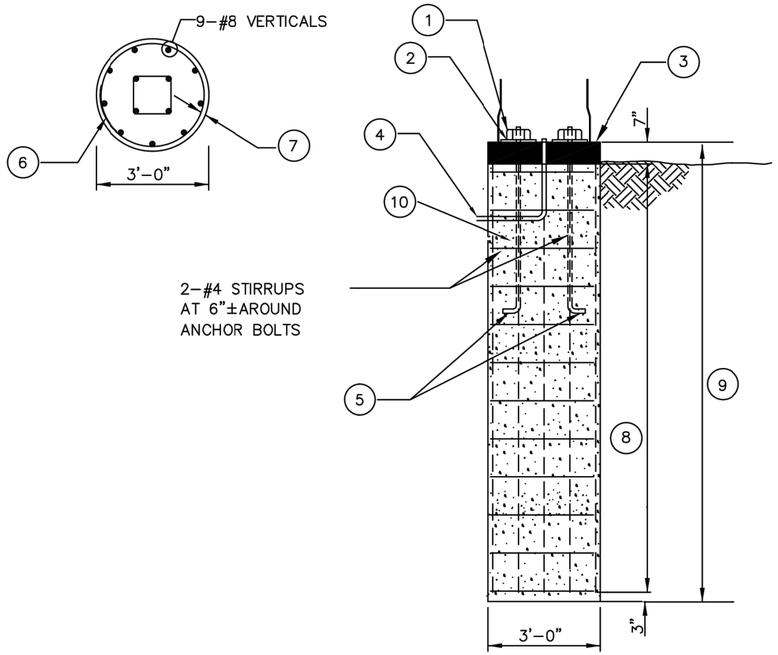
120TH & NORTHAVEN SIGNAL DESIGN DETAILS

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 1 of 5

Project No./Code
SHO M286-050
24696
Sheet Number 13



FOOTING NOTES

1. HEX NUTS
2. SQUARE NUTS
3. 4"–7" MIN. NON–SHRINKABLE GROUT OVER ROUGH FOUNDATION
4. RIGID CONDUIT (24" MIN. DEPTH, 30" MIN. DEPTH UNDER ROADWAY) CONDUIT STUB FROM PULL BOX TO POLE SHALL BE ONE 3" DIA. AND ONE 2" DIA.
5. INSTALL ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE PRINT (FURNISHED WITH ORDER)
6. MINIMUM OVERLAP 12"
7. 1–1/2" CLEARANCE FOR HOOPS
8. 15 – #4 HOOPS AT +/– 12" FOR 15' FTG.
   12 – #4 HOOPS AT +/– 12" FOR 12' FTG.
9. USE 15' FOOTING FOR POLES WITH MAST ARMS 45' IN LENGTH OR LONGER. USE 12' FOOTING FOR POLES WITH MAST ARMS LESS THAN 45' IN LENGTH.
10. ALL INSTALLATIONS TO BE PROPERLY GROUNDED.

CAISSON DESIGNS REQUIRE THAT THE CAISSON BE FOUNDED IN COMPACT SAND, CLAY, OR SANDY CLAY. IF BY VISUAL INSPECTION OF THE HOLE OTHER MATERIAL IS PRESENT, THE CAISSON DESIGN SHALL BE MODIFIED AS DETERMINED BY THE RESPONSIBLE PARTY'S ENGINEER.

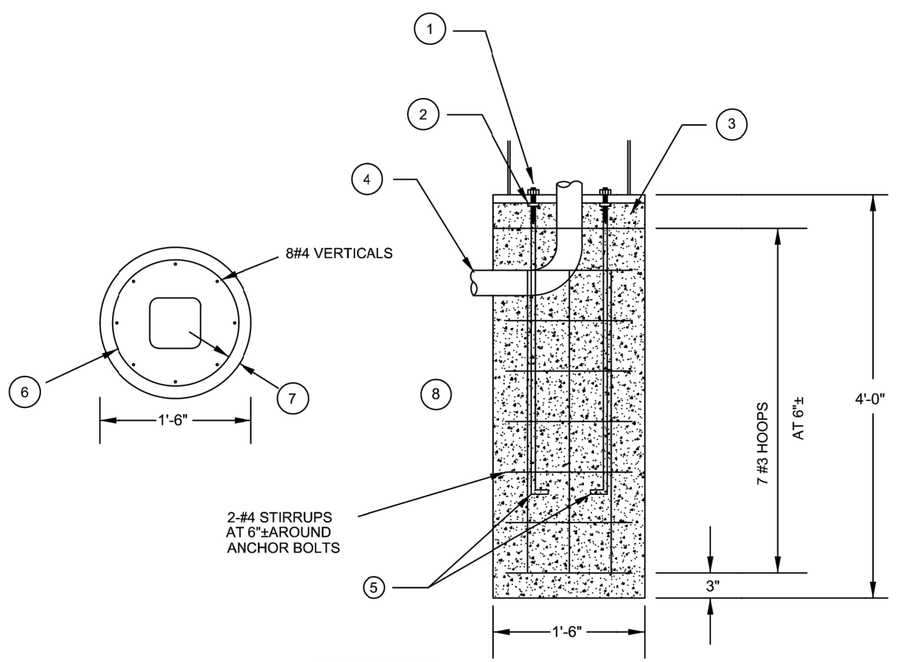
N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL TRAFFIC SIGNAL POLE FOOTING INSTALLATION

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010

DRAWING NO. 700–3



FOOTING NOTES

1. HEX NUTS
2. SQUARE NUTS
3. 4" - 7" MIN. NON-SHRINKABLE GROUT OVER ROUGH FOUNDATION
4. RIGID CONDUIT (24" MIN. DEPTH, 30" MIN. DEPTH UNDER ROADWAY) CONDUIT STUB FROM PULL BOX TO POLE SHALL BE ONE 2" DIA. OR TWO 2" DIA., SEE PLANS
5. INSTALL ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE PRINT (FURNISHED WITH ORDER)
6. MINIMUM OVERLAP 12"
7. 1-1/2" CLEARANCE FOR HOOPS
8. ALL INSTALLATIONS TO BE PROPERLY GROUNDED.

CAISSON DESIGNS REQUIRE THAT THE CAISSON BE FOUNDED IN COMPACT SAND, CLAY, OR SANDY CLAY. IF BY VISUAL INSPECTION OF THE HOLE OTHER MATERIAL IS PRESENT, THE CAISSON DESIGN SHALL BE MODIFIED AS DETERMINED BY THE RESPONSIBLE PARTY'S ENGINEER.

N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TYPICAL PEDESTRIAN POLE FOOTING INSTALLATION

ISSUED: FEBRUARY 2003
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DRAWING NO. 700–4

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Sheet Revisions

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12450 WASHINGTON ST.
THORNTON, CO 80241

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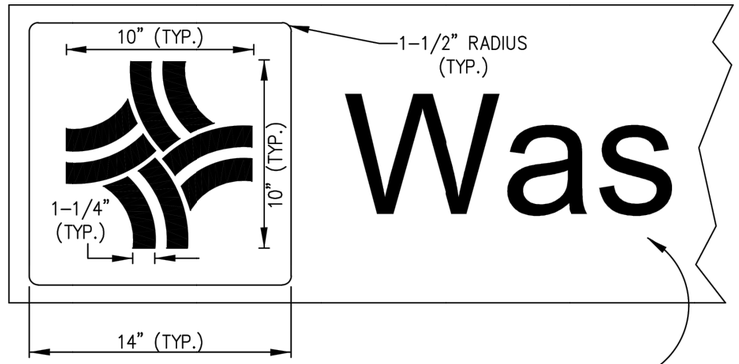
120TH & NORTHAVEN SIGNAL DESIGN DETAILS

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 2 of 5

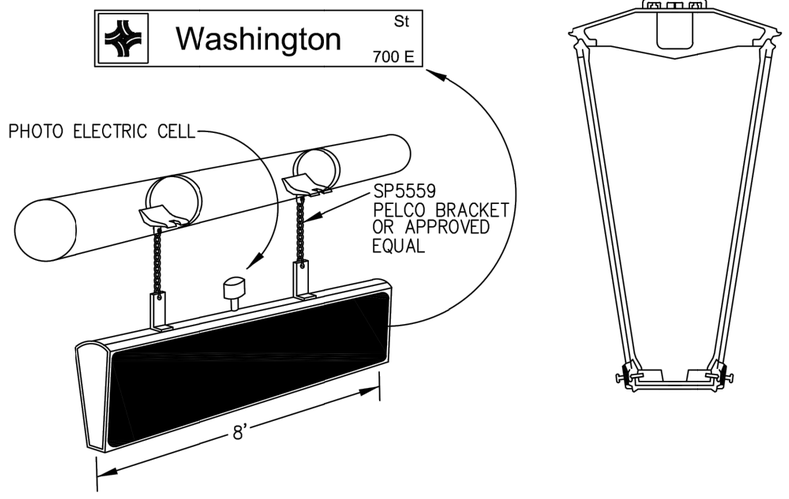
Project No./Code
SHO M286–050
24696
Sheet Number 14

TYPICAL LAYOUT

COLORS:
LOGO = PANTONE 300 INTENSE BLUE
LOGO BACKGROUND = WHITE
SIGN FIELD = PANTONE 3435c EMERALD GREEN
STREET NAME LETTERING = WHITE
HOUSING COLOR = PER DRAWING NO. 700-5

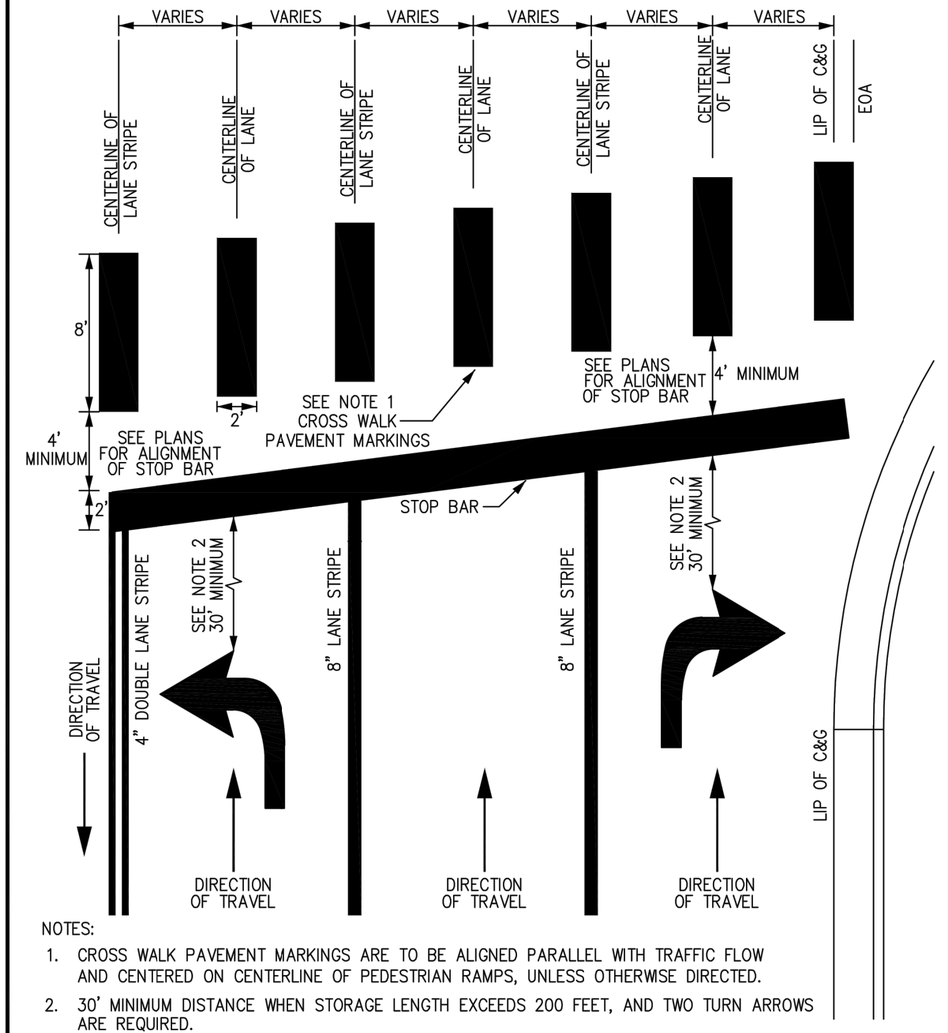


TEXT SIZE FOR STREET NAME TO AS LARGE AS POSSIBLE AND AND STILL MAINTAIN A +/- 1" BORDER AROUND SIGN.



N.T.S.

	CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS TYPICAL ILLUMINATED STREET SIGN INSTALLATION	ISSUED: FEBRUARY 2003 REVISED: APRIL 2010 DRAWING NO. 700-10



NOTES:
1. CROSS WALK PAVEMENT MARKINGS ARE TO BE ALIGNED PARALLEL WITH TRAFFIC FLOW AND CENTERED ON CENTERLINE OF PEDESTRIAN RAMPS, UNLESS OTHERWISE DIRECTED.
2. 30' MINIMUM DISTANCE WHEN STORAGE LENGTH EXCEEDS 200 FEET, AND TWO TURN ARROWS ARE REQUIRED.

N.T.S.

	CITY OF THORNTON, COLORADO STANDARDS & SPECIFICATIONS CROSSWALK & STOP BAR PAVEMENT MARKING DETAIL	ISSUED: FEBRUARY 2005 REVISED: APRIL 2010 DRAWING NO. 700-16A

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12450 WASHINGTON ST.
THORNTON, CO 80241

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Revised:
Void:

120TH & NORTHAVEN SIGNAL DESIGN DETAILS

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 3 of 5

Project No./Code
SHO M286-050
24696
Sheet Number 15

Plot Date=2/1/2024 7:41 AM Plotted By: Sarah Hemler
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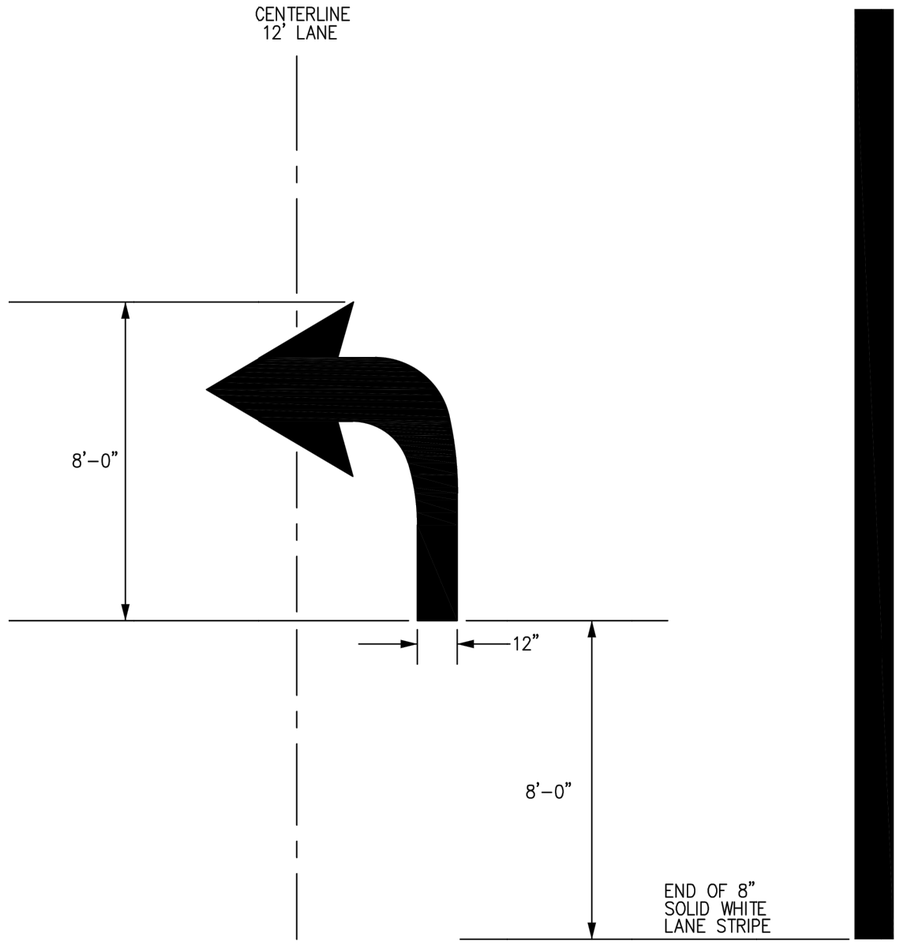


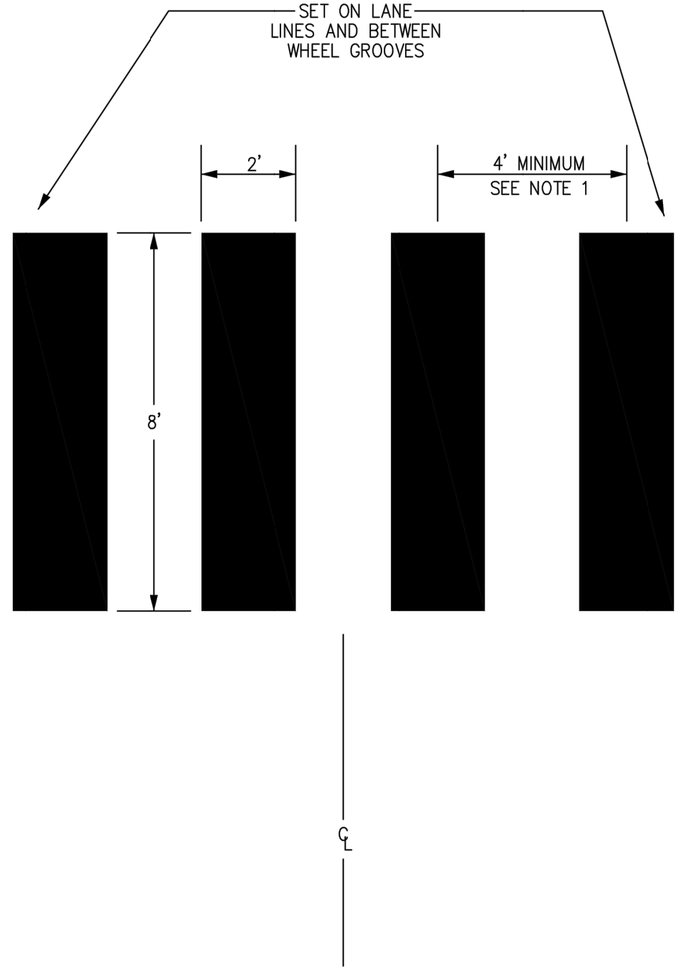
N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

TURN ARROW PAVEMENT MARKING DETAIL

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010

DRAWING NO. 700-17



FIELD ADJUST SPACING TO AVOID VEHICLE TIRE PATHS.

N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

CROSSWALK PAVEMENT MARKING DETAIL

ISSUED: FEBRUARY 2003
REVISED: APRIL 2010

DRAWING NO. 700-18

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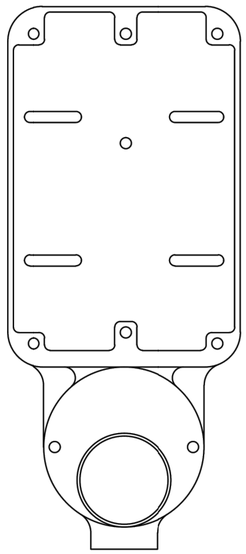
120TH & NORTHAVEN SIGNAL DESIGN DETAILS

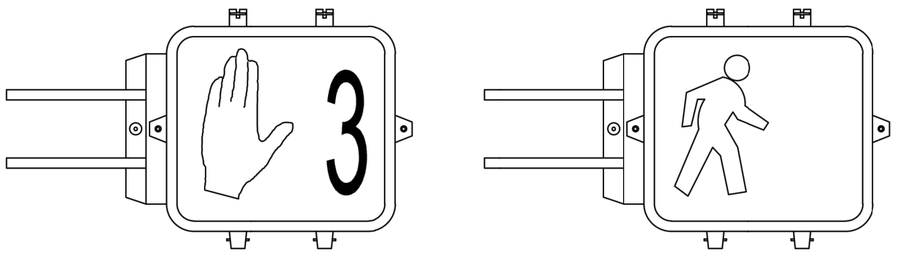
Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 4 of 5

Project No./Code
SHO M286-050
24696
Sheet Number 16

PUSH BUTTON SIGN PLATE
(5" x 7-3/4")



APS PUSH BUTTON



ALL PEDESTRIAN
SIGNAL HEADS
(COUNTDOWN TYPE)

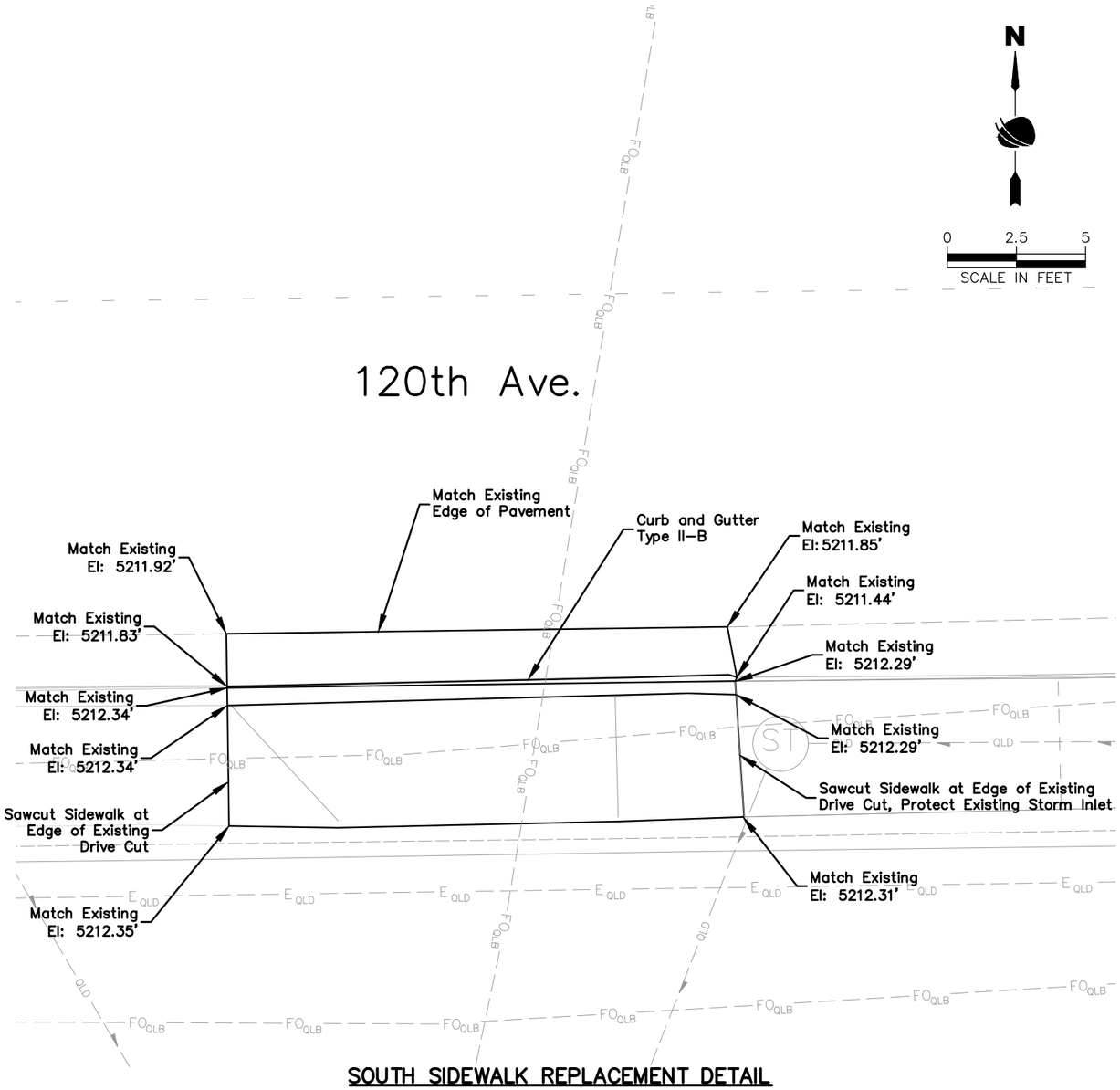
N.T.S.

CITY OF THORNTON, COLORADO
STANDARDS & SPECIFICATIONS

PEDESTRIAN TRAFFIC SIGNAL, SIGN AND PUSH BUTTON

ISSUED:
SEPT 2012
REVISED:

DRAWING NO.
700-24



SOUTH SIDEWALK REPLACEMENT DETAIL

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Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: DETAIL
Structure Numbers:
Subset Sheets: 5 of 5

Project No./Code
SHO M286-050
24696
Sheet Number 17

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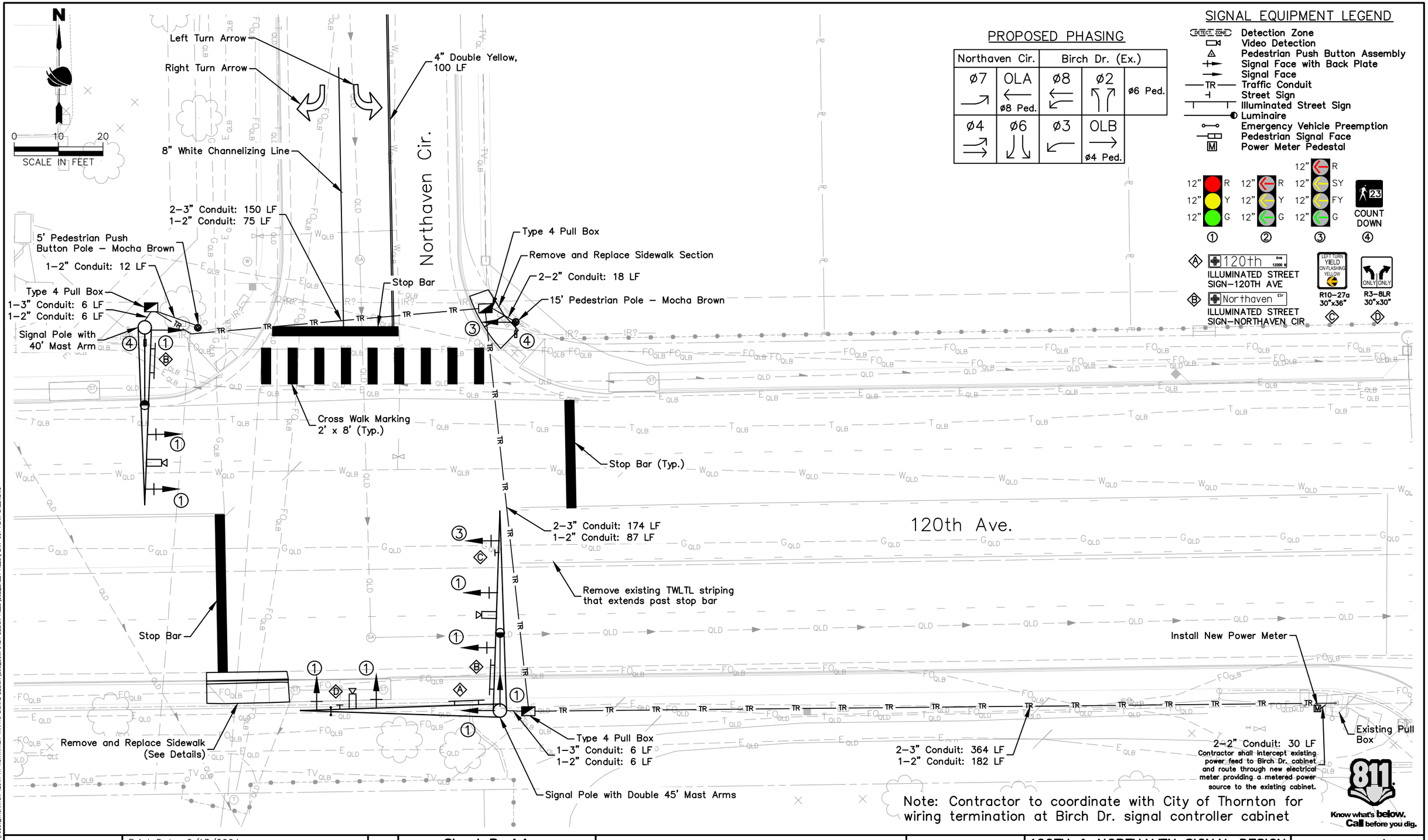

PROPOSED PHASING

Northaven Cir.		Birch Dr. (Ex.)		
ø7	OLA ø8 Ped.	ø8	ø2	ø6 Ped.
ø4	ø6	ø3	OLB ø4 Ped.	

SIGNAL EQUIPMENT LEGEND

- Detection Zone
- Video Detection
- Pedestrian Push Button Assembly
- Signal Face with Back Plate
- Signal Face
- TR — Traffic Conduit
- Street Sign
- Illuminated Street Sign
- Luminaire
- Emergency Vehicle Preemption
- Pedestrian Signal Face
- M — Power Meter Pedestal

12" R / 12" Y / 12" G ① | 12" R / 12" Y / 12" G ② | 12" R / 12" SY / 12" FY / 12" G ③ | 23 COUNT DOWN ④

Ⓐ 120th Ave — ILLUMINATED STREET SIGN–120TH AVE

Ⓑ Northaven Cir — ILLUMINATED STREET SIGN–NORTHAVEN CIR

LEFT TURN YIELD ON FLASHING YELLOW — R10–27a 30"x36" Ⓒ

ONLY ONLY — R3–8LR 30"x30" Ⓓ

FOR CONSTRUCTION

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	RockSol Consulting Group, Inc. 12076 Grant Street Thornton, CO 80241 Ph: (303) 962-9300 Fax: (303) 962-9350	Date / Comments / Initials	
	City of Thornton TRAFFIC ENGINEERING DIVISION 12450 WASHINGTON ST. THORNTON, CO 80241	**As Constructed** No Revisions: Revised: Void:	**120TH & NORTHAVEN SIGNAL DESIGN TRAFFIC SIGNAL PLAN** Designer: J. LANCASTER Detailer: S. HEMLER Sheet Subset: PLAN Structure Numbers Subset Sheets: 1 of 1	**Project No./Code** SHO M286–050 24696 Sheet Number 18

Plot Date:2/13/2024 11:45 AM Plotted By: Sarah Hemler
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STORMWATER MANAGEMENT PLAN

1. SITE DESCRIPTION

The Contractor shall comply with all City of Thornton MS4 requirements.

A. PROJECT SITE LOCATION:
Location or address of construction office: _____
The project is located 120th Avenue between Northaven Circle and Birch Drive with the City of Thornton.

B. PROJECT SITE DESCRIPTION:
The project will install a new traffic signal at the intersection of 120th Avenue and Northaven Circle. Utilities will extend all the way to Birch Drive, to tie in the new traffic signal timing with the existing traffic signal at Birch Drive.

C. PROPOSED SEQUENCING FOR MAJOR CONSTRUCTION ACTIVITIES:
The project will start by installing the posts for the traffic signal and underground utilities. Then, the traffic signal pole and signals will be installed. Striping and final stabilization will complete the project.

D. ACRES OF DISTURBANCE:
1. Total area of construction site (LOC): 0.2 acres
2. Total area of proposed disturbance (LDA): 0.05 acres
3. Total area of seeding: 0.05 acres

E. EXISTING SOIL DATA:
Soils at this site consist of hydrologic soil group C, which is comprised primarily of platner loam. Minimal slopes are present within the project area, ranging from 0-3 percent.

Data Source(s): https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

2. STORMWATER MANAGEMENT CONTROLS FOR FIRST CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL PERFORM THE FOLLOWING:

A. POTENTIAL POLLUTANT SOURCES
Refer to Potential Pollutant Sources in SWMP Section 4A. Evaluate, identify and describe all potential sources of pollutants at the site in accordance with subsection 107.25 and place any Control Measures required to contain potential pollutants.

B. OFFSITE DRAINAGE (RUN ON WATER):
Place Control Measures to address run-on water in accordance with subsection 208.03.

C. CONSTRUCTION DEWATERING:
Obtain a CDPS Dewatering Permit from CDPHE if conditions of their Low-Risk Guidance for Discharges of Uncontaminated Groundwater to Land are not met; see subsections 107.02 and 107.25.

Refer to CDPHE Low Risk Discharge Guidance Document of Uncontaminated Groundwater to Land.
https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf

D. VEHICLE TRACKING CONTROL:
Control Measures shall be implemented in accordance with subsection 208.04.

E. PERIMETER CONTROL:
Perimeter control shall be established as the first item on the project to prevent the potential for pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to state waters.
Perimeter control may consist of berms, silt fence, erosion logs, existing landforms, or other Control Measures as approved.

3. DURING CONSTRUCTION

A. MATERIALS HANDLING AND SPILL PREVENTION:
Prior to construction commencing the Contractor shall submit a Spill Prevention, Control and Countermeasure Plan, see subsection 208.06. Materials handling shall be in accordance with subsection 208.06.

B. OTHER CDPS PERMITS:
None.

C. STOCKPILE MANAGEMENT:
Shall be done in accordance with subsections 107.25 and 208.07.

D. CONCRETE WASHOUT:
Concrete washout water or waste from field laboratories and paving equipment shall be contained in accordance with subsection 208.05.

E. SAW CUTTING:
Shall be done in accordance with subsections 107.25, 208.04, and 208.05.

F. STREET SWEEPING:
shall be done in accordance with subsection 208.04.

4. CONTROL MEASURE MAINTENANCE

Maintenance shall be in accordance with subsection 208.04 (f).

5. INTERIM AND PERMANENT STABILIZATION

The Contractor shall comply with all interim stabilization and permanent stabilization requirements in accordance with subsection 208.04(e).

A. SEEDING PLAN
A seeding plan is not provided because all final stabilization work within the project limits will be replaced in-kind. Areas of soil disturbance shall be seeded and final stabilized at the direction of the Project Engineer. See Sections 212 and Section 213. Landscape Restoration lump sum item will be used to pay for restoring landscaping that is disturbed back to existing condition.

6. PRIOR TO PROJECT FINAL ACCEPTANCE

1. When directed by the Engineer, removal and disposal of temporary control measures shall be included in the cost of work.
2. Refer to Specification 208.10 for Items to be completed prior to requesting partial acceptance of water quality work.

FOR CONSTRUCTION

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Fax: (303) 962-9350

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12450 WASHINGTON ST.
THORNTON, CO 80241

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120TH & NORTHAVEN SIGNAL DESIGN
SWMP NARRATIVE

Designer: L. GENTILE
Detailer: L. GENTILE
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 1 of 3

Project No./Code
SHO M286-050
24696
Sheet Number 19

1. TABULATION OF STORMWATER QUANTITIES

1. Control measure maintenance, sediment removal, and sediment disposal shall be included in the cost of the control measure.

PSP Spec.	Pay Item	Description	Pay Unit	Initial Const.	Interim Const.	Permanent Stabilization	*Total Quantity
	208-00035	Aggregate Bag	LF	30	30		60
	208-00046	Pre-fabricated Concrete Washout Structure (Type 1)	Each	1			1
	208-00053	Storm Drain Inlet Protection (Type I) (84 Inch)	Each	3			3
	208-00106	Sweeping (Sediment Removal)	Hour		24		24
X	212-01200	Landscape Restoration	LS			1	1
	607-11525	Fence (Plastic)	LF		50		50

*It is anticipated that additional control measures and control measure quantities not shown on the SWMP Site Maps shall be required on the project for unforeseen conditions and replacement of items that are beyond their useful service life, see subsections 208.03 and 208.04. **Quantities for all control measures shown above are estimated, and have been increased for unforeseen conditions and normal control measure life expectancy.** Quantities shall be adjusted according to the conditions encountered in the field as directed and approved by the Engineer. Payment shall be for the actual work completed and material used.

2. BIOLOGICAL IMPACTS and DEWATERING

A. ENVIRONMENTAL IMPACTS:

Wetland Impacts: NO
Stream Impacts: NO
Threatened and Endangered Species: No species are anticipated to be impacted by the project.

B. DEWATERING:

(Not covered under the CDPHE guidance document Low Risk Discharge Guidance Discharges of Uncontaminated Groundwater to Land):
https://www.colorado.gov/pacific/sites/default/files/WQ%20LOW%20RISK%20GW.pdf
Dewatering: Refer to other environmental permits in accordance with subsection 107.02 and the permits contained in Tab 16 of the SWMP.
If groundwater does not meet water quality standards for receiving water a separate CDPS Dewatering Permit shall be obtained by the Contractor from CDPHE in accordance with subsections 107.02 and 107.25.

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Fax: (303) 962-9350

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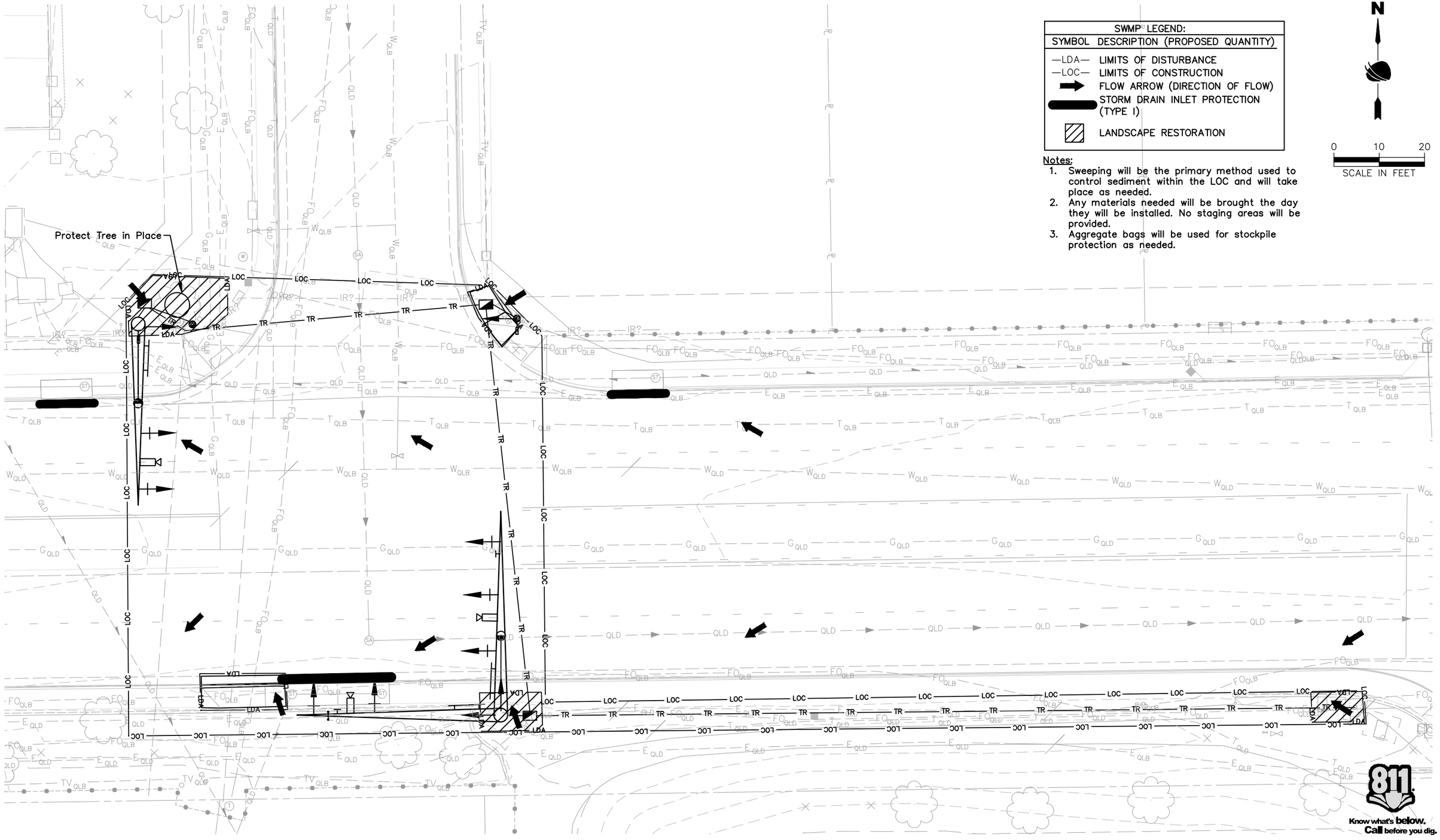
120TH & NORTHAVEN SIGNAL DESIGN SWMP NARRATIVE

Designer: L. GENTILE
Detailer: L. GENTILE
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 2 of 3

Project No./Code
SHO M286-050
24696
Sheet Number 20



Notes:

1. Sweeping will be the primary method used to control sediment within the LOC and will take place as needed.
2. Any materials needed will be brought the day they will be installed. No staging areas will be provided.
3. Aggregate bags will be used for stockpile protection as needed.

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Fax: (303) 962-9350

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120TH & NORTHAVEN SIGNAL DESIGN SWMP PLAN INITIAL/INTERIM/FINAL

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: SWMP
Structure Numbers:
Subset Sheets: 3 of 3

Project No./Code

SHO M286-050
24696
Sheet Number 21

UTILITY RECORDS CONTACT LIST

COMPANY	UTILITY TYPE	CONTACT NAME	EMAIL	PHONE	811 ENG. TICKET RESULTS
Adams 12 5-Star Schools	Fiber	Hallie Rogers	hallie.rogers@adams12.org	Not Available	Records Received
Adams Cnty Comm Cntr Authority	Fiber	Scott Lane	slane@adcom911.org	303-289-2235	Records Received
AT&T Transmission	Fiber	Harvey Rosa	hr8716@att.com	970-408-9110	Records Received
Lumen (CenturyLink)	Fiber & Telco	Luke Thompson	Luke.Thompson@lumen.com	303-995-2859	Records Received
City of Thornton	Water	Steve Crow	Not Available	720-977-6553	Records Received
City of Thornton	Sewer	Justin Richardson	Not Available	720-977-6554	Records Received
City of Thornton	Storm	Joe Romero	Not Available	720-977-6392	Records Received
City of Thornton	Irrigation	Matt Schutter	Not Available	303-255-7824	Records Received
Comcast	CATV & Fiber	Marco Povis-Rosales	Marco_Povisr@comcast.com	720-495-7506	Records Received
MCI (Verizon)	Fiber	Lane Grady	lane.grady@verizon.com	303-827-9756	Records Received
United Power	Electric	Kasey Pfeil	kpfeil@UnitedPower.com	303-637-1227	Clear - No Conflict
Xcel Energy	Electric & Gas	Builders Call Line	BCLCO@xcelenergy.com	1-800-628-2121	Records Received
Zayo Bandwidth	Fiber	Eric Boe	eric.boe@zayo.com	303-481-6121	Records Received

UTILITY LEGEND

QUALITY LEVEL B

- E_{QLB} EXISTING ELECTRIC
- FO_{QLB} EXISTING FIBER OPTIC
- G_{QLB} EXISTING GAS MAIN
- TV_{QLB} EXISTING TELEVISION
- T_{QLB} EXISTING TELEPHONE
- W_{QLB} EXISTING WATER

QUALITY LEVEL D

- E_{QLD} EXISTING ELECTRIC
- FO_{QLD} EXISTING FIBER OPTIC
- G_{QLD} EXISTING GAS MAIN
- IR? EXISTING IRRIGATION
- T_{QLD} EXISTING TELEPHONE
- W_{QLD} EXISTING WATER
- EXISTING STORM

SYMBOLOGY

- IRRIGATION WATER MARKER
- GAS MARKER
- TELEPHONE PEDESTAL
- POWER POLE
- VALVE GATE
- EXISTING IRRIGATION PIPE

SUBSURFACE UTILITY GENERAL NOTES

1. Utility data depicted on the following sheets is prepared in accordance with ASCE 38–22 and C.R.S. 9–1.5 for a subsurface utility engineering required project.
2. Quality level B designation and quality level A test holing has been completed by Kinetic Energy Services, LLC on 10/12/2023.
3. Storm and sanitary sewer mains and laterals, where shown, meet ASCE quality level C. Service lines are not located.
4. It is the Contractor's responsibility to field verify horizontal and vertical locations of all utilities prior to commencing construction. The Contractor must call the Utility Notification Center of Colorado at least 2 business days prior to any excavation to request the exact field locations of utilities.
5. The Contractor shall be responsible for protecting all utilities during construction and for coordinating with the appropriate utility company for any utility crossing required. Repair of damaged utilities shall be at the Contractor's expense, including but not limited to unknown underground utilities.
6. The Contractor shall notify AT&T at least 72 hours prior to any excavation or hydro excavation within the limits of their easement. A representative is required to be onsite to verify their facilities and observe bore crossing and depths.
7. The Contractor shall coordinate with Comcast, Thornton, and Xcel Energy for all associated relocation needs. The Contractor shall provide survey stake(s) for the proposed caisson locations with caisson diameter and depth specified.
8. The Contractor shall allow Utility Owners to use its lane closures and staging areas within the contracted duration of construction.

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Ph: (303) 962-9300
Fax: (303) 962-9350

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12450 WASHINGTON ST.
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120TH & NORTHAVEN SIGNAL DESIGN UTILITY NOTES AND CONTACTS

Designer: N. CLOUSE
Detailer: C. MCNAMERA
Sheet Subset: UTILITIES
Structure Numbers:
Subset Sheets: 1 of 2

Project No./Code
SHO M286–050
24696
Sheet Number 22

TEST HOLE TABLE (QUALITY LEVEL A)

TH #	UTILITY OWNER	UTILITY TYPE	SIZE (IN)	UTILITY MATERIAL	GROUND MATERIAL	DEPTH TO TOP (IN)	DEPTH TO BOP (IN)	GROUND ELEV (FT)	TOP ELEV (FT)	BOP ELEV (FT)	NORTHING	EASTING	DATE PERFORMED	COMMENTS
1	Thornton	Irrigation Lateral	2"	PVC	Grass	31.0	33.0	5212.8	5210.2	5210.0	1212043.78	3158788.28	10/12/2023	Parallel. 4.5" behind sidewalk
2	-	-	-	-	Grass	-	-	5213.2	-	-	1212044.61	3158797.34	10/12/2023	No utilities found to 6ft depth and 3ft swath
3	XCEL	Gas Main	4"	Black Steel	Grass	44.0	48.0	5212.3	5208.6	5208.3	1212048.40	3158812.61	10/12/2023	-
4.1	Thornton	Irrigation Lateral	2.5"	PVC	Landscape Rock	11.0	13.5	5212.5	5211.6	5211.4	1212047.13	3158879.29	10/12/2023	-
4.2	Comcast	Fiber	1.5"	Orange Conduit	Landscape Rock	9.5	11.0	5212.5	5211.7	5211.5	1212046.81	3158878.87	10/12/2023	-
5	-	-	-	-	Landscape Mulch	-	-	5212.9	-	-	1211957.63	3158814.25	10/12/2023	No utilities found to 6ft depth and 3ft swath. Asphalt encountered at 2'-9" depth
6.1	Thornton	Irrigation Lateral	3"	PVC	Landscape Mulch	25.0	28.0	5213.7	5213.7	5211.4	1211953.37	3158819.91	10/12/2023	Red wires underneath pvc
6.2	Verizon	Fiber	(2x) 3"	Orange Conduit	Landscape Mulch	26.0	29.0	5213.5	5211.4	5211.1	1211954.53	3158819.97	10/12/2023	Asphalt encountered at 2'-9" depth
7.1	-	-	-	-	Grass	-	-	5213.2	-	-	1211958.63	3158878.83	10/12/2023	Center of pothole to 6ft depth and 3ft swath
7.2	XCEL	Electric	-	Direct Buried	Grass	45.5	45.5	5213.3	5209.5	5209.5	1211958.12	3158878.59	10/12/2023	-
8.1	XCEL	Electric	-	Direct Buried	Grass	13.0	13.0	5213.2	5212.1	5212.1	1211959.35	3158900.72	10/12/2023	-
8.2	Verizon	Fiber	(2x) 3"	Orange Conduit	Grass	47.0	50.0	5212.8	5208.9	5208.7	1211959.87	3158900.69	10/12/2023	-

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Fax: (303) 962-9350

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120TH & NORTHAVEN SIGNAL DESIGN UTILITY NOTES AND CONTACTS

Designer: N. CLOUSE
Detailer: C. MCNAMERA
Sheet Subset: UTILITIES
Structure Numbers:
Subset Sheets: 2 of 2

Project No./Code
SHO M286-050
24696
Sheet Number 23

NOTES:

Protect all utility lines in place unless otherwise noted.

A slash mark on the utility line denotes loss of signal during designation, QLD lines are drawn in where designation was unable to occur.

0 10 20
SCALE IN FEET

N

TH #1
TH #2
TH #3
TH #4.1 (NE)
TH #4.2 (SW)
TH #5
TH #6.1 (N)
TH #6.2 (S)
TH #7.1 (N)
TH #7.2 (S)
TH #8.1 (N)
TH #8.2 (S)

Thornton Irrigation Lateral
(Relocate by Contractor)

Comcast Fiber
(Relocate by Others)

Thornton Irrigation Lateral
Protect In Place

Xcel Street Light
(Remove by Others)

Xcel Secondary Electric
(Relocate by Others)

MCI Fiber (2x)
Protect In Place

Xcel
Zayo
Lumen
AT&T
Thornton
Comcast
Adams 12
MCI
Xcel Secondary
Xcel Primary

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Fax: (303) 962-9350

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120TH & NORTHAVEN SIGNAL DESIGN UTILITY PLAN

Designer: N. Clouse
Detailer: C. McNamara
Sheet Subset: UTILITY
Structure Numbers:
Subset Sheets: 1 of 1

Project No./Code
SHO M286-050
24696
Sheet Number 24

TABULATION OF TEMPORARY TRAFFIC CONTROL SIGNING

SIGN	DESCRIPTION	DIMENSION	PANEL SIZE EACH A
W20-1	ROAD WORK AHEAD	36" X 36"	5
G20-2	END ROAD WORK	36" X 18"	5
W20-5L	LEFT LANE CLOSED	36" X 36"	2
W20-5R	RIGHT LANE CLOSED	36" X 36"	2
W20-7	FLAGGER (SYMBOL)	36" X 36"	4
W4-2R	RIGHT LANE MERGE	36" X 36"	2
W4-2L	LEFT LANE MERGE	36" X 36"	2
R8-3	NO PARKING	30" X 30"	2
M4-9a	BIKE/PEDESTRIAN DETOUR	30" X 24"	4
R9-9	SIDEWALK CLOSED	24" X 12"	4
TOTALS			32

TABULATION OF TRAFFIC CONTROL DEVICES

ITEM	DESCRIPTION	UNIT	QUANTITY
630-00000	FLAGGING	HOUR	300
630-00003	UNIFORMED TRAFFIC CONTROL	HOUR	48
630-00007	TRAFFIC CONTROL INSPECTION	DAY	19
630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	45
630-80341	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH	32
630-80350	VERTICAL PANEL	EACH	25
630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	2
630-80356	ADVANCED WARNING SEQUENCING ARROW PANEL (A TYPE)	EACH	2
630-80360	DRUM CHANNELIZING DEVICE	EACH	25
630-80380	TRAFFIC CONE	EACH	50

TEMPORARY TRAFFIC CONTROL GENERAL NOTES:

The Contractor shall prepare and submit a Method for Handling Traffic (MHT) prior to starting. The MHT shall be submitted to the City of Thornton Project Engineer for review and approval no less than five business days prior to starting construction.

The MHT shall conform to the requirements of Part 6 of the Manual on Uniform Control Devices (MUTCD), 2009 Edition, and the Colorado Department of Transportation M & S Standard Plans, Latest Edition (S–630–1 and S–630–2).

Project Requirements include:

1. No work shall be allowed at signalized intersections or on arterial roadways which impedes normal traffic flow from 5:00am to 8:30am, and 3:30pm to 7:00pm, except during emergencies or with prior approval of the Development Engineering Manager. Failure to complete work within the traffic control permit may result in a "stop work" order.
2. Standard working hours are from 7:00am to 7:00pm Monday through Friday.
3. There shall be no work performed on weekends or holidays except by approval of the City of Thornton Project Manager.
4. It is the Contractor's responsibility to provide a safe traveled way for vehicular and pedestrian traffic through the construction zone and within the clear zone of the excavated area.
5. Unless otherwise approved by the Engineer, the Contractor's Equipment shall follow normal and legal traffic movements. The Contractor's ingress and egress of the work area shall be accomplished with as little disruption to traffic as possible. Traffic control devices shall removed by picking up the devices in a reverse sequence to that used for installation. This may require moving backwards through the work zone, but is limited to within the lane or shoulder closures. When located behind or at other locations shown on approved traffic control plans, equipment may operate in a direction opposite to adjacent traffic.
6. The Contractor shall not have construction equipment or materials in the lanes open to traffic at any time, unless approved by the Engineer.
7. All travel lanes shall be a minimum of 11' wide.
8. The Contractor shall maintain traffic flow and allow access to homes, businesses, and side streets at all times. The Contractor shall provide temporary ramping and flaggers when necessary.
9. The Contractor should coordinate any temporary closures to homes or businesses with the owners.
10. The Contractor shall close any lanes when overhead work on mast arms is to take place.

The construction sequence described below is a potential sequence available for the Contractor's use. It is a general concept and is provided for information only. Not all construction details have been addressed. The Contractor is in no way obliged to employ the methods or sequences of construction outlined. Any variation in phasing must be approved before construction begins.

All temporary construction signs and traffic control devices shall be placed according to an approved MHT before beginning construction.

Phase 1 – Single Lane Closures on Eastbound 120th Ave.

- Remove concrete sidewalk at exiting drive cut
- Construct concrete sidewalk and curb and gutter replacement where existing drive cut was removed
- Bore all conduit on south side of 120th Ave.
- Construct proposed pull boxes on south side
- Construct caisson, signal pole, and double mast arms on south side

Phase 2 – Single Lane Closures on Westbound 120th Ave.

- Remove concrete panels on northeast corner
- Bore conduit across Northaven Cir. and 120th Ave.
- Construct caisson and pedestrian signal pole on northeast corner
- Install pull boxes on the north side of 120th Ave.
- Construct concrete sidewalk panels on the northeast corner
- Construction pedestrian push button pole on northwest corner.
- Construct caisson, signal pole, and mast arm on northwest corner.

Phase 3

- Coordinate with City of Thornton for wiring termination at Birch signal control cabinet

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12076 Grant Street
Thornton, CO 80241
Ph: (303) 962-9300
Fax: (303) 962-9350

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THORNTON, CO 80241

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120TH & NORTHAVEN SIGNAL DESIGN
TEMPORARY TRAFFIC CONTROL

Designer: J. LANCASTER
Detailer: S. HEMLER
Sheet Subset: TRAF
Structure Numbers:
Subset Sheets: 1 of 1

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Sheet Number 25

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