CONSTRUCTION PLANS
FOR THE CITY OF TRAVERSE CITY
2015 WEST FRONT STREET
RECONSTRUCTION PROJECT

LOCAL UTILITIES

CITY OF TRAVERSE CITY ENGINEERING DEPARTMENT
ADDRESS: 400 BOARDMAN AVENUE, TRAVERSE CITY
CONTACT: TIMOTHY J. LODGE
TELEPHONE: (231) 922-4460

TRAVERSE CITY LIGHT AND POWER
ADDRESS: 1131 HASTINGS STREET, TRAVERSE CITY
ENGINEER: BLAKE WILSON
TELEPHONE: (231) 934-4544

TRAVERSE CITY SOIL EROSION & SEDIMENTATION CONTROL
ADDRESS: 400 BOARDMAN AVENUE, TRAVERSE CITY
CONTACT: JOHN MCWETHY
TELEPHONE: (231) 922-4467

CONSUMERS ENERGY COMPANY (C.P.)
ADDRESS: 821 HASTINGS ST., TRAVERSE CITY
AREA ENGINEER: GREG MORTENSEN
TELEPHONE: 1-800-477-5050

AT&T
ADDRESS: 142 E. STATE STREET, TRAVERSE CITY
AREA ENGINEER: KATHY DOHM-BEISER
TELEPHONE: (231) 941-2707

DTE ENERGY
ADDRESS: 1250 MICHCON LANE, S.W. P.O. BOX 279, KALKASKA
AREA ENGINEER: MATTHEW LOGAN
TELEPHONE: (231) 258-3785
EMERGENCY LEAK RESPONSE: 1-800-947-5000

TRAVERSE CITY WATER AND SEWER MAINTENANCE
ADDRESS: 507 HANNAH AVE., TRAVERSE CITY
CONTACT: JUSTIN ROY
TELEPHONE: (231) 922-4923

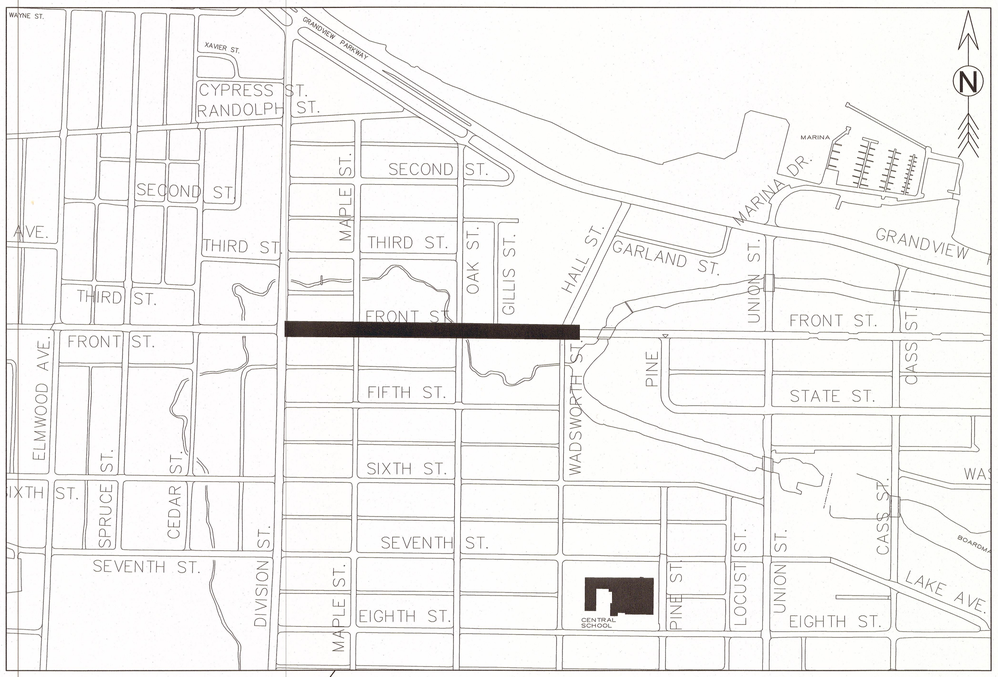
MICHIGAN DEPARTMENT OF TRANSPORTATION (M.D.O.T.)
TRAVERSE CITY TSC
ADDRESS: 2084 US-31 SOUTH, TRAVERSE CITY
ENGINEER: DAVE PAX
TELEPHONE: (231) 941-1986

CHARTER COMMUNICATION
ADDRESS: 1392 TRADE CENTRE DR., TRAVERSE CITY
ENGINEER: KEVIN MORRISON
TELEPHONE: (231) 932-8140

POLICE AGENCIES
EMERGENCY CALLS: 911
CITY OF TRAVERSE CITY: (231) 995-5150
MICHIGAN STATE POLICE: (231) 946-4646
GRAND TRAVERSE COUNTY SHERIFF: (231) 922-4500

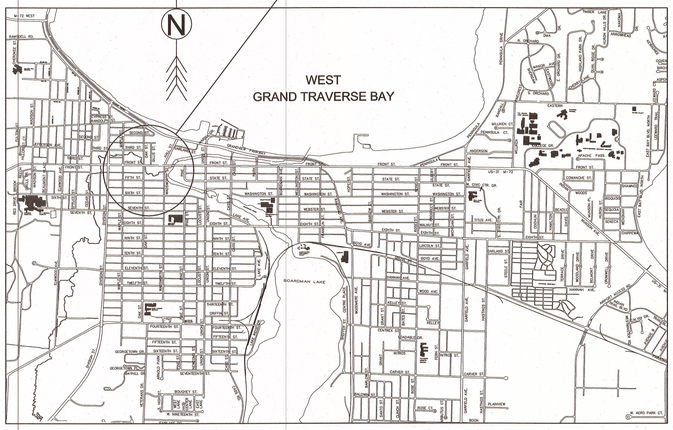
FIRE DEPARTMENTS
EMERGENCY CALLS: 911
CITY OF TRAVERSE CITY: (231) 922-4930

AMBULANCE
EMERGENCY CALLS: 911



LOCATION PLAN
NO SCALE

GRAND TRAVERSE COUNTY
CITY OF TRAVERSE CITY
R11W, T27N



THE FOLLOWING ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MDOT STANDARD PLANS REFERENCED BELOW:

MDOT STANDARD PLANS - NOT PRINTED

R-28-I SIDEWALK RAMP DETAILS

R-29-I DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALKS

R-30-G CONCRETE CURB & CONCRETE CURB & GUTTER*

R-83-B UTILITY TRENCHES*

R-96-E SOIL EROSION & SEDIMENTATION CONTROL MEASURES

TRAFFIC & SAFETY STANDARD PLANS - NOT PRINTED

WZD-100-A TEMPORARY GROUND DRIVEN SIGNS*

WZD-125-E TEMPORARY TRAFFIC CONTROL DEVICES*

* SPECIAL DETAIL INCLUDED IN PROPOSAL

PLAN INDEX

SHEET	DESCRIPTION
1	COVER SHEET
2	DETAIL NOTE SHEET
3	STORM SEWER DETAIL SHEET
4	SANITARY SEWER AND WATER MAIN DETAIL SHEET
5	STREETSCAPE DETAIL SHEET
6	CROSS SECTION DETAIL SHEET
7	REMOVAL ITEMS (P.O.B. TO STA.)
8	REMOVAL ITEMS (STA. TO P.O.E.)
9	PLAN AND PROFILE (P.O.B. TO STA. 3+75)
10	PLAN AND PROFILE (STA. 3+75 TO STA. 7+75)
11	PLAN AND PROFILE (STA. 7+75 TO STA. 11+25)
12	PLAN AND PROFILE (STA. 11+25 TO STA. 15+00)
13	PLAN AND PROFILE (STA. 15+00 TO P.O.E.)
14	GRADING SHEET (P.O.B. TO STA. 9+95)
15	GRADING SHEET (STA. 9+95 TO P.O.E.)
16	INTERSECTION GRADING DETAILS
17	INTERSECTION GRADING DETAILS
18	PAVEMENT MARKING & PERMANENT SIGNAGE PLAN (P.O.B. TO STA.)
19	PAVEMENT MARKING & PERMANENT SIGNAGE PLAN (STA. TO P.O.E.)
20	LANDSCAPING PLAN (P.O.B. TO STA.)
21	LANDSCAPING PLAN (STA. TO P.O.E.)
22	LANDSCAPE DETAIL SHEET
23	TRAFFIC MAINTENANCE PLAN
24	TRAFFIC SIGNAL DETAILS
25	ELECTRICAL PLAN
26	ELECTRICAL PLAN
27	ELECTRICAL DETAILS

CONSTRUCT IN ACCORDANCE WITH CITY OF TRAVERSE CITY STANDARD SANITARY SEWER SPECIFICATIONS DATED JUNE 2008 AND APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) IN JULY 2008, INCLUDED IN THE PROPOSAL.

CONSTRUCT IN ACCORDANCE WITH CITY OF TRAVERSE CITY STANDARD WATER MAIN CONSTRUCTION SPECIFICATIONS DATED MARCH 2008 AND APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) IN MAY 2008, INCLUDED IN THE PROPOSAL.

Know what's below. Call before you dig.

City of Traverse City

STATE OF MICHIGAN
TIMOTHY J. LODGE
ENGINEER
No. 34014
LICENSED PROFESSIONAL ENGINEER
2-26-15
CITY ENGINEER
TIMOTHY J. LODGE, P.E.

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
COVER SHEET

Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: N.T.S.
Sheet No.: 1 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Det-Note-Sht2.dwg, 2/26/2015 2:21:08 PM, zcole

WATERMAIN NOTES

1. ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM WITH THE TRAVERSE CITY ENGINEERING DEPARTMENT CURRENT STANDARDS, SPECIFICATIONS AND DETAILS, SHOWN IN THE PROPOSAL.

2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF THE WATERMAIN. CONTRACTOR SHALL ISSUE A WORK SCHEDULE TO THE ENGINEER PRIOR TO THE START OF WATERMAIN CONSTRUCTION.

3. ALL WATERMAIN SHALL BE DUCTILE IRON PIPE THICKNESS CLASS 52, MEETING CURRENT AWWA STANDARDS. ALL FITTINGS SUCH AS TEES, ELBOWS, BENDS ETC., SHALL BE INCLUDED IN THE WATERMAIN PAY ITEM.

4. WATERMAIN SHALL HAVE A MINIMUM OF FIVE (5) FEET OF COVER BELOW EXISTING OR PROPOSED GRADE, UNLESS OTHERWISE NOTED ON THE PLANS. MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION AND 18" VERTICAL SEPARATION FROM ALL SEWERS.

5. BURLAP, PLASTIC OR POLY (20 MILLS) OR APPROVED EQUAL SHALL BE PLACED BETWEEN THE CONCRETE THRUST BLOCK AND DEAD-END MAINS OR DEAD-END PLUGS, TEES, HYDRANTS AND CROSSES TO FACILITATE THE REMOVAL OF THE THRUST BLOCK FOR FUTURE EXTENSION AND MAINTENANCE.

6. A PHYSICAL GAP SHALL BE MAINTAINED BETWEEN THE WATERMAIN AND THE EXISTING WATER SYSTEM UNTIL ALL WATERMAIN TESTING HAS BEEN COMPLETED AND APPROVED BY THE ENGINEER, AND THE CITY OF TRAVERSE CITY.

7. THE CONTRACTOR SHALL COORDINATE THE CONNECTION TO THE EXISTING WATER SYSTEM WITH THE CITY OF TRAVERSE CITY D.P.W.. THE OPERATION OF THE EXISTING GATE VALVES ON THE SYSTEM SHALL BE PERFORMED BY THE D.P.W. ONLY. THE ENGINEER AND D.P.W. SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO THE CONNECTION.

8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN WATER FOR FLUSHING AND TESTING PURPOSES. CONTRACTOR SHALL COORDINATE WITH THE D.P.W., IF WATER IS OBTAINED FROM THE EXISTING WATER SYSTEM. THE D.P.W. SHALL BE GIVEN 24 HOURS NOTICE PRIOR TO USING ANY WATER FROM THE EXISTING WATER SYSTEM.

9. PROPOSED WATER SERVICES SHALL BE PROVIDED FOR ALL EXISTING WATER SERVICES. THE COST OF LOCATING EXISTING WATER SERVICES SHALL BE INCLUDED IN 1" COPPER WATER SERVICE CONNECTION (SHORT SIDE) AND 1" COPPER WATER SERVICE CONNECTION (LONG SIDE). THE CONTRACTOR SHALL COORDINATE LOCATING EXISTING WATER SERVICES WITH THE CITY OF TRAVERSE CITY.

10. FITTINGS REQUIRED TO CONNECT PROPOSED WATERMAIN TO EXISTING WATERMAIN SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND SHALL BE INCLUDED IN THE COST OF THE CONNECT TO EXISTING WATERMAIN PAY ITEM. THE CONTRACTOR SHALL FIELD VERIFY THE TYPES OF EXISTING WATERMAINS PRIOR TO ORDERING CONNECTION FITTINGS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE EXISTING WATERMAIN WHILE MAKING CONNECTIONS. ANY ADDITIONAL WATERMAIN REQUIRED TO REPAIR DAMAGE INCURRED WHILE MAKING CONNECTIONS TO EXISTING WATERMAIN SHALL BE AT THE CONTRACTORS EXPENSE.

12. ALL PIPE NOT CHLORINATED AS PART OF THE NORMAL DISINFECTING PROCEDURES SHALL BE HAND CHLORINATED. THIS SHALL INCLUDE ALL PIPE USED FOR CLOSURES AND CONNECTIONS. THIS OPERATION WILL BE INCLUDED AS PART OF THE PROPOSED WATERMAIN CONSTRUCTION.

13. THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH. ALL THRUST BLOCKS SHALL TERMINATE AT THE FACE OF THE PIPE BELLS.

14. IT IS ANTICIPATED THAT TRENCH BOXES OR OTHER SHEETING AND SHORING METHODS WILL BE NECESSARY TO CONSTRUCT THE WATERMAIN. THESE ITEMS, IF NECESSARY, SHALL BE INCLUDED IN THE PAYMENT PER LINEAR FOOT OF WATERMAIN.

15. LOCATIONS AND ELEVATIONS OF POTENTIAL STORM SEWER CONFLICTS SHALL BE FIELD VERIFIED PRIOR TO WATERMAIN CONSTRUCTION. FITTINGS REQUIRED TO AVOID CONFLICT ARE INCLUDED IN THE COST OF WATERMAIN AND WILL NOT BE PAID FOR SEPARATELY.

16. WHEN PROPOSED WATERMAIN PASSES BENEATH EXISTING SEWERS/UTILITIES, TEMPORARY SUPPORT OF EXISTING SEWERS/UTILTIES IS INCLUDED IN THE COST OF WATERMAIN PAY ITEMS.

17. REMOVAL OF ABANDONED WATERMAINS AS REQUIRED FOR CLEARANCE TO CONSTRUCT THE PROPOSED WATERMAINS SHALL BE INCLUDED AS PART OF THE PROPOSED WATERMAIN CONSTRUCTION.

18. ON ALL WATERMAINS THAT ARE ABANDONED, VALVES NO LONGER NEEDED SHALL BE REMOVED, AND SHALL REMAIN THE PROPERTY OF THE CITY OF TRAVERSE CITY.

19. ALL MAINS ABANDONED SHALL BE CUT TWO FEET FROM MAIN OR VALVE AND CAPPED WITH RETAINING GLANDS AND THRUST BLOCK.

20. HYDRANTS SHALL BE CITY OF TRAVERSE CITY STANDARD EAST JORDAN MODEL 5-BR.

SANITARY SEWER NOTES

1. A "POURED 3500 P.S.I. CONCRETE BASE", WITHOUT STEEL REINFORCEMENT, MAY BE SUBSTITUTED FOR A PRECAST BASE WHEN APPROVED BY THE CITY ENGINEER. A POROUS BACK FILL CUSHION WILL NOT BE REQUIRED UNDER THE POURED BASE, UNLESS THE CONTRACTOR HAS EXCAVATED BELOW REQUIRED ELEVATION AT WHICH TIME THE ENGINEER WILL DECIDE AS TO THE MERITS OF INCREASING THE THICKNESS OF THE CONCRETE BASE OR THE USE OF POROUS BACKFILL CUSHION.

2. WHERE UNSTABLE GROUND CONDITIONS ARE ENCOUNTERED, SLAG OR STONE BEDDING SHALL BE USED AS DIRECTED BY THE CITY ENGINEER IN ORDER TO PROVIDE A STABLE FOUNDATION FOR PIPE AND MANHOLE, COST TO BE INCLUDED IN THE UNIT PRICE FOR PIPE.

3. WHEREVER DEPTH OF COVER NECESSITATES, THE CONTRACTOR SHALL INSTALL A 8" MINIMUM THICK, REINFORCED, 3500 P.S.I. PRECAST CONCRETE FLAT "COOKIE" IN PLACE OF A CONE SECTION, AS DIRECTED BY THE ENGINEER, AT NO EXTRA COST.

4. ALL SANITARY SEWER WORK CONSTRUCTED DURING THIS PROJECT SHALL CONFORM TO THE JUNE 2008 VERSION OF STANDARD SANITARY SEWER CONSTRUCTION SPECIFICATIONS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) IN JULY 2008.

5. DEWATERING AND BYPASS PUMPING OF EXISTING SEWAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE RESPECTIVE CONTRACT ITEMS AND WILL NOT BE MEASURED FOR ANY PAYMENT SEPARATELY UNLESS LISTED AS A SEPARATE PAY ITEM.

6. BYPASS PUMPING SHALL BE COORDINATED WITH THE CITY WATER AND SEWER MAINTENANCE AND SERVICE CUSTOMERS TO MINIMIZE DISRUPTIONS AND INCONVENIENCES.

7. ALL EXISTING CULVERT, FOOTING DRAINS, STORM DRAINS AND OTHER LEADS THAT ARE DISTURBED OR ENCOUNTERED DURING THE WORK SHALL BE MAINTAINED DURING CONSTRUCTION TO PREVENT BLOCKAGE OR BACKUPS AND SHALL BE RESTORED BY THE CONTRACTOR TO EXISTING OR BETTER CONDITION. MAINTENANCE AND RESTORATION OF THESE ITEMS SHALL BE INCLUDED IN THE WORK.

8. MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION BETWEEN ALL SEWERS AND WATERMAINS. PROVIDE 18" MINIMUM VERTICAL SEPARATION WHERE SEWERS CROSS WATERMAINS.

9. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION, ADDITIONAL LATERALS MAY BE ENCOUNTERED.

10. SANITARY SEWERS SHALL HAVE ELASTOMERIC GASKET PUSH ON TYPE JOINTS. THE JOINT SHALL CONFORM TO ASTM DESIGNATION D 3212.

11. IT IS ANTICIPATED THAT TRENCH BOXES OR OTHER SHEETING AND SHORING METHODS AND DEWATERING WILL BE NECESSARY TO CONSTRUCT THE SANITARY SEWER. THESE ITEMS, IF NECESSARY SHALL BE INCLUDED IN PAYMENT FOR PVC SANITARY SEWER.

12. PREMIUM JOINTS ARE REQUIRED ON ALL SANITARY MANHOLES AND SHALL BE IN ACCORDANCE WITH ASTM C443. MANHOLES SHALL BE PRECAST CONCRETE WITH INTEGRAL BASES (ASTM C 478).

13. THE EXTERIOR OF THE MANHOLE MUST BE WATERPROOFED. THE MATERIAL TO BE USED FOR EXTERIOR MANHOLE WATERPROOFING SHALL BE A HEAVY FIBERED TYPE WATERPROOFING MASTIC CONFORMING TO FEDERAL SPECIFICATIONS SS-C-153 TYPE 1 OR CS-206. THE MASTIC SHALL BE A.C. HORN (GRACE), FLINT KOTE 710-23 OR EQUAL.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE EXISTING SANITARY SEWER WHILE MAKING CONNECTIONS. ANY ADDITIONAL SANITARY SEWER REQUIRED TO REPAIR DAMAGE INCURRED WHILE MAKING CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE AT THE CONTRACTORS EXPENSE.

15. WHERE NEW SEWER IS TO REPLACE EXISTING SEWER IN THE SAME TRENCH, REMOVAL OF EXISTING SEWER SHALL BE INCLUDED AS PART OF NEW SEWER ITEM.

STORM SEWER NOTES

1. ALL STORM SEWER SHALL BE CL IV REINFORCED CONCRETE PIPE, TRENCH DETAIL B, UNLESS SPECIFICALLY STATED OTHERWISE.

2. DRAINAGE STRUCTURE AND SANITARY MANHOLE COVERS SHALL BE PAID AS SHOWN ON PLANS. MANHOLE CASTINGS SHALL HAVE STORM SEWER, SANITARY SEWER OR WATER CAST ON STRUCTURE COVER AS APPLICABLE.

3. PROPOSED STORM AND SANITARY MANHOLES SHALL BE 4 FEET IN DIAMETER UNLESS NOTED OTHERWISE.

4. EJ 7045 CASTINGS SHALL HAVE T1 BACK AND M2 GRATES.

SOIL EROSION NOTES

1. ALL DISTURBED AREAS SHALL BE TOPSOILED, SODDED OR SEEDED, FERTILIZED AND MULCHED. MULCH BLANKET SHALL BE INSTALLED IN AREAS AS DESIGNATED AND SHALL BE INCIDENTAL TO OTHER ITEMS. AVOID UNNECESSARY DISTURBING OR REMOVING EXISTING VEGETATED TOPSOIL OR EARTH COVER.

2. THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE CITY OF TRAVERSE CITY.

3. EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

GENERAL NOTES

1. ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.

3. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL, 1-800-482-7171, A MINIMUM OF THREE WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.

4. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE, AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION.

5. LOCATION OF EXISTING UTILITIES: EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES, SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION.

6. EXISTING PROPERTY CORNERS ARE IDENTIFIED ON THE PLANS. IF A PROPERTY CORNER IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTORS EXPENSE BY A PROFESSIONAL LAND SURVEYOR.

7. CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT TO ANY MAILBOXES DISTURBED DURING CONSTRUCTION AND SHALL NOT INTERFERE WITH MAIL SERVICE. ALL DISTURBED MAILBOXES SHALL BE PLACED IN ORIGINAL LOCATION AT AN ELEVATION DETERMINED BY THE POSTAL SERVICE.

8. LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

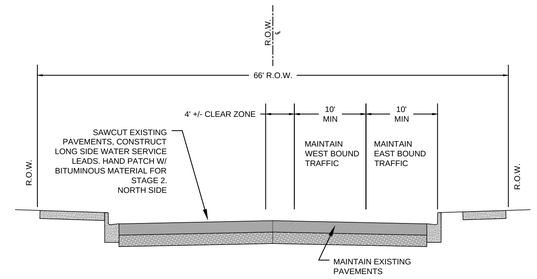
9. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY.

10. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY.

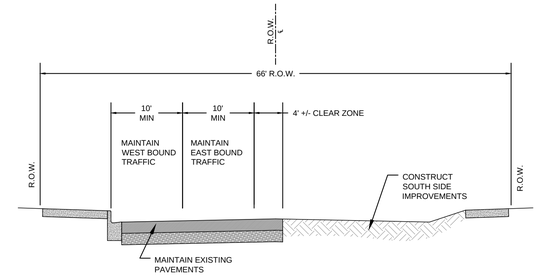
11. DEWATERING AND BYPASS PUMPING OF EXISTING STORM SEWERS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE INCLUDED IN THE RESPECTIVE CONTRACT ITEMS AND WILL NOT BE MEASURED FOR ANY PAYMENT SEPARATELY

12. ANY OTHER WORK REQUIRED TO COMPLETE THE CONSTRUCTION SHOWN ON THE PLANS AND DESCRIBED ON THE SPECIFICATIONS THAT DOES NOT HAVE A SPECIFIC PAY ITEM SHALL BE INCIDENTAL TO ONE OF THE OTHER PAY ITEMS AND THE CONTRACTOR SHALL ARRANGE HIS BID PROPOSAL ACCORDINGLY.

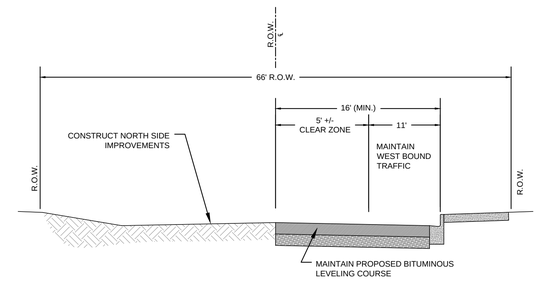
13. CONTRACTOR SHALL PROVIDE DESIGN FABRICATION AND INSTALLATION REQUIRED FOR ALL PRECAST CONCRETE COMPONENTS. ALL STRUCTURES SHALL BE CAPABLE OF SUPPORTING H-20 LOADING.



STAGE 1: MAINTAINING TRAFFIC
N.T.S.



STAGE 2: MAINTAINING TRAFFIC
N.T.S.



STAGE 3: MAINTAINING TRAFFIC
N.T.S.

The City of Traverse City
Engineering Department

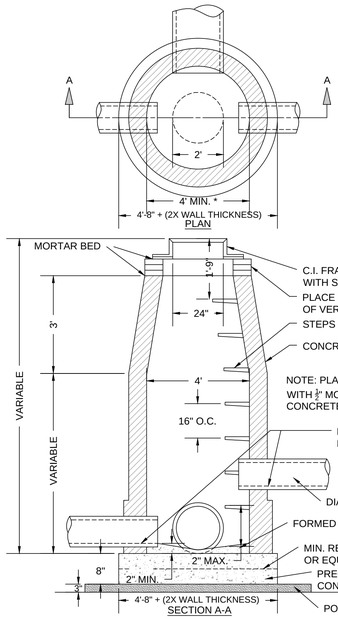
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
DETAIL NOTE SHEET

Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 2 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Det-Note-Sht3.dwg, 2/26/2015 2:21:13 PM, zcole

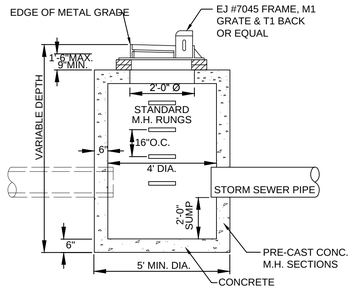


NOTE: THIS MANHOLE SHALL BE USED FOR MANHOLE STRUCTURES ON ALL STORM SEWERS WHERE THE DIAMETER OF THE OUTLET PIPE IS 12" AND LARGER, UNLESS OTHERWISE CALLED FOR ON THE PLANS.

* DIA. OF M.H. SHALL BE INCREASED AS SHOWN, DEPENDING ON THE DIAMETERS AND ANGLES OF THE SEWERS.

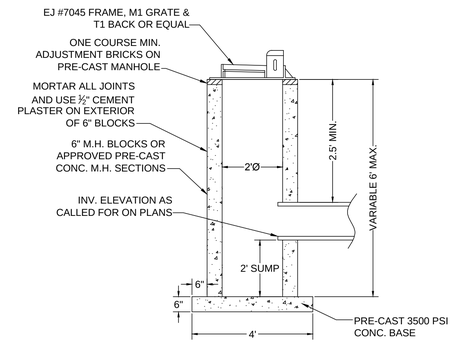
STANDARD STORM MANHOLE DETAIL
N.T.S.

NOTE:
SEE PLAN FOR DRAINAGE STRUCTURES THAT REQUIRE SUMPS

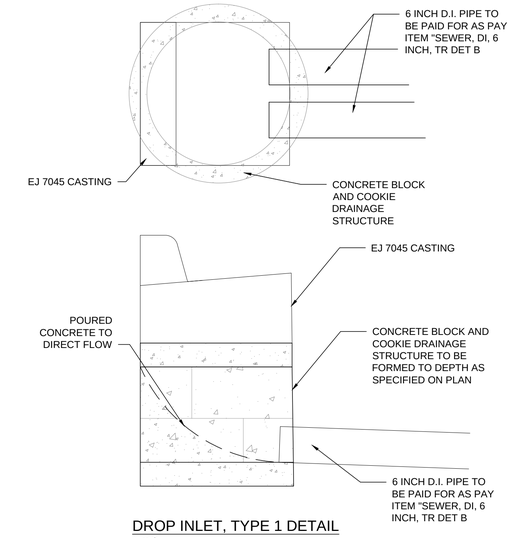


NOTE:
SEE PLAN FOR DRAINAGE STRUCTURES THAT REQUIRE SUMPS

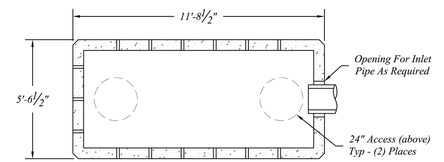
4 FT. DIA. CATCH BASIN W/ SUMP DETAIL
N.T.S.



2' DIA. CATCH BASIN W/ SUMP DETAIL
N.T.S.



DROP INLET, TYPE 1 DETAIL
N.T.S.



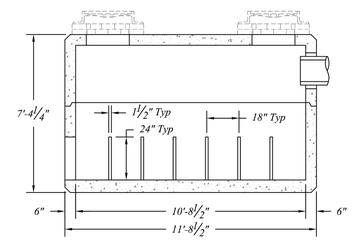
Dry Well Sections To Be Manufactured per AASHTO 17th Ed. and ASTM Specifications w/HS-25 Loading and 0.0' to 3.0' of Earth Cover.

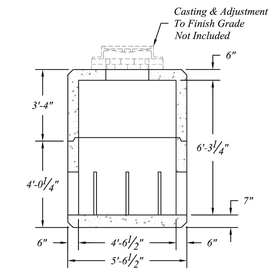
Concrete: 5000psi @ 28 Days

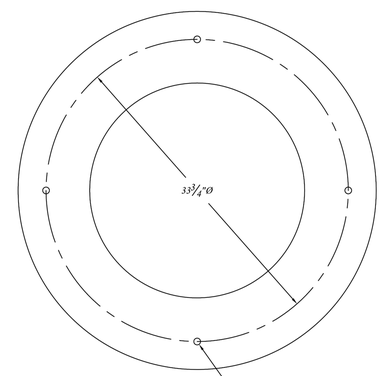
Reinforcement per ASTM A-615 & A-496..

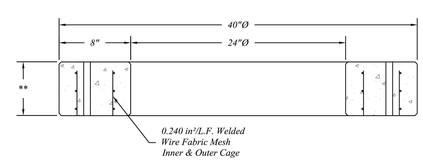
Cover To Be Sealed w/1½" EZ-Stik or Equal.

Pipe & Fittings For Inlets & Outlets Are Not Included.







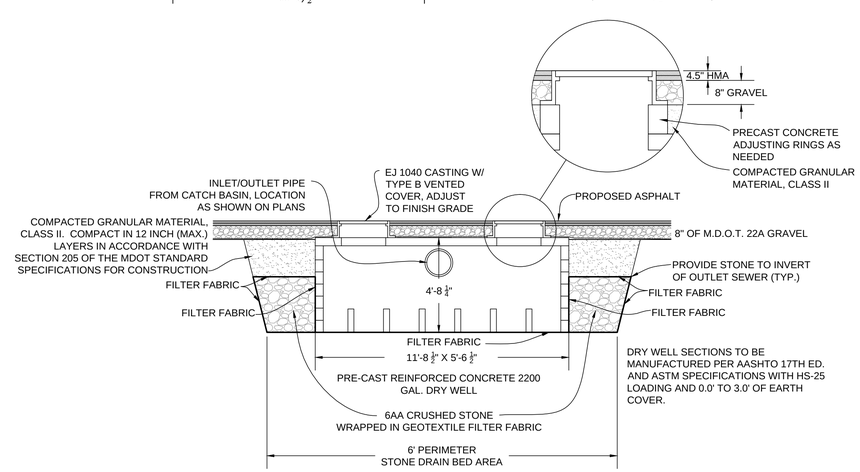


Precast Adjusting Rings Manufactured To ASTM C-478 Specifications.

Adjusting Rings Are Available In 2", 3", 4" & 6" Heights.

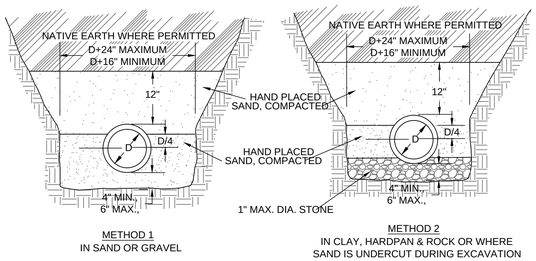
Reinforcing Shown For Schematic Only.

CONCRETE ADJUSTING RING DETAIL
N.T.S.



DRY WELL DETAIL
N.T.S.

NOTE:
ALL BACKFILL AND TRENCHING SHALL MEET THE REQUIREMENTS OF ASTM D2321



PIPE BEDDING DETAIL
(CLASS B) N.T.S.

CITY OF TRAVERSE CITY MICHIGAN Engineering

The City of Traverse City
Engineering Department

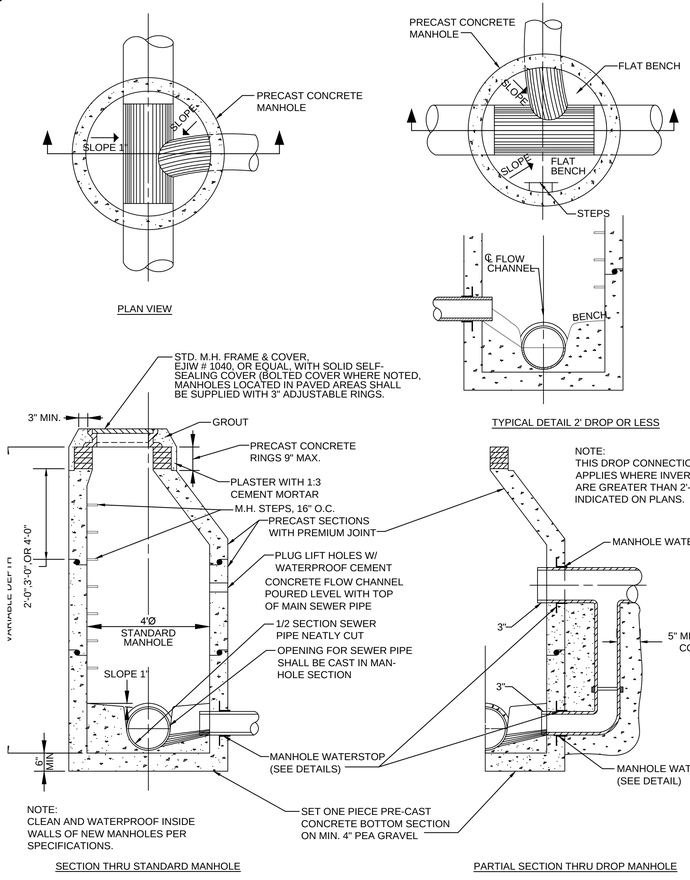
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
STORM SEWER DETAIL SHEET

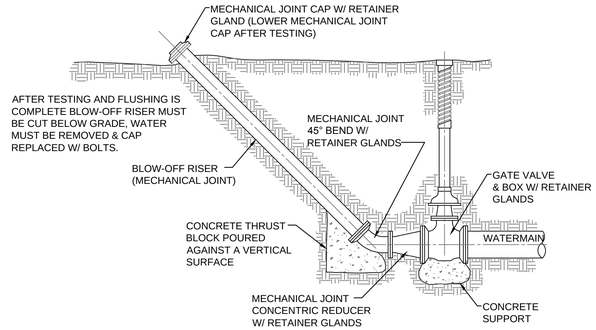
Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 3 OF 27

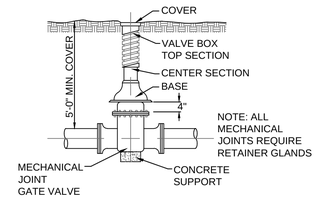
K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Det-Note-Sht4.dwg, 2/26/2015 2:21:22 PM, zcole



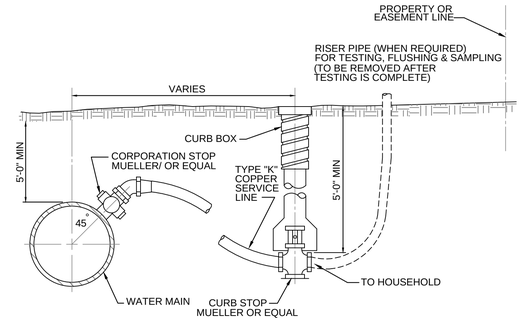
STANDARD SANITARY MANHOLE DETAIL
N.T.S.



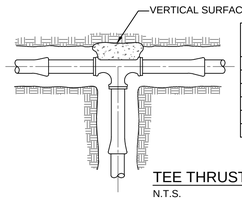
BLOW-OFF DETAIL
N.T.S.



TYPICAL VALVE BOX INSTALLATION
N.T.S.

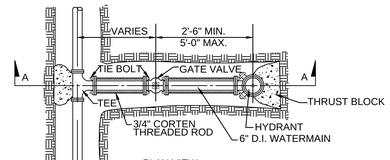


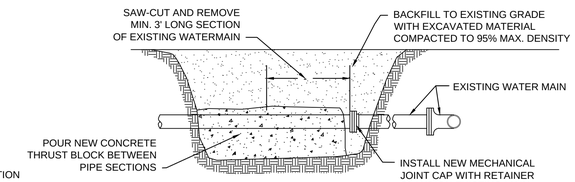
TYPICAL SERVICE CONNECTION
N.T.S.



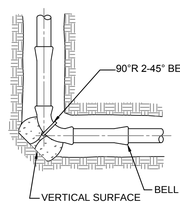
PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS
4"	1'-0"x 1'-0" = 1 SQ. FT.
6"	1'-4"x 1'-3" = 1-2/3 SQ. FT.
8"	1'-9"x 1'-8" = 3 SQ. FT.
10"	2'-0"x 2'-0" = 4 SQ. FT.
12"	2'-3"x 2'-3" = 5-1/2 SQ. FT.
16"	3-4"x 3'-4" = 11 SQ. FT.

TEE THRUST BLOCK DETAIL
N.T.S.





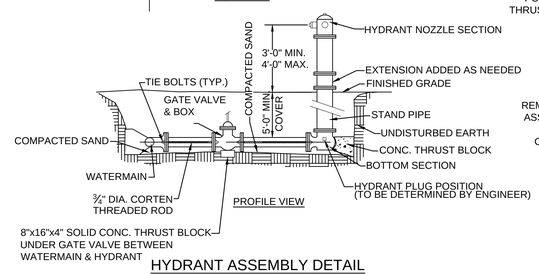
TYPICAL CUT & CAP EXISTING MAIN DETAIL
N.T.S.



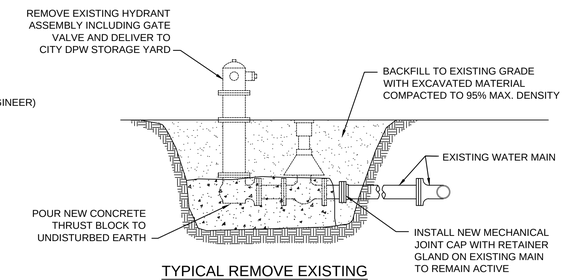
90° BEND IN PIPE (45° BEND SIMILAR)

PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS
4"	1'-4"x 1'-0" = 1-1/3 SQ.FT.
6"	1'-8"x 1'-6" = 2-1/2 SQ.FT.
8"	2'-0"x 2'-0" = 4 SQ.FT.
10"	2'-3"x 2'-3" = 5-1/2 SQ.FT.
12"	2'-9"x 2'-9" = 7-1/2 SQ.FT.
16"	3'-9"x 3'-9" = 14 SQ.FT.

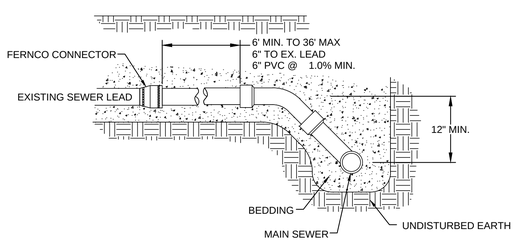
BEND THRUST BLOCK DETAIL
N.T.S.

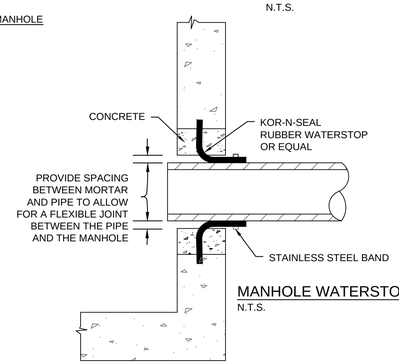


HYDRANT ASSEMBLY DETAIL
SECTION A-A
N.T.S.

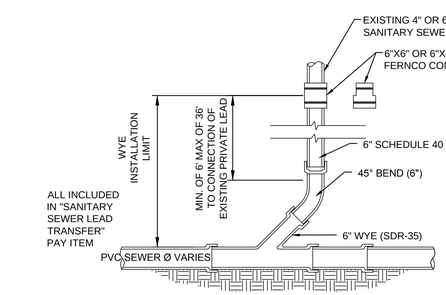


TYPICAL REMOVE EXISTING HYDRANT ASSEMBLY DETAIL
N.T.S.



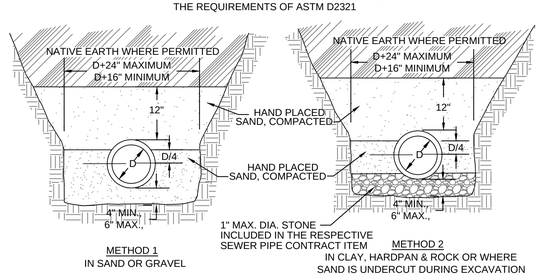


MANHOLE WATERSTOP DETAIL
N.T.S.

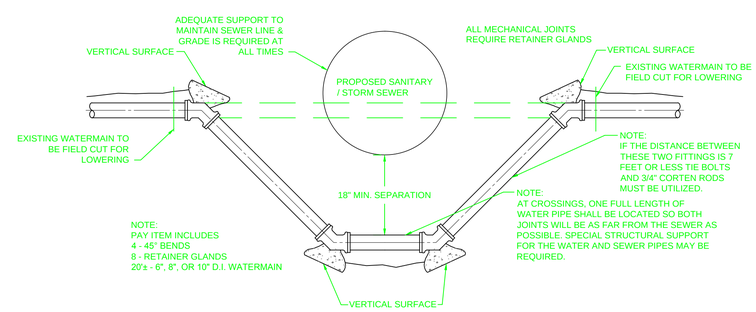


SANITARY LEAD TRANSFER DETAIL (SHORT SIDE, LONG SIDE)
N.T.S.

NOTE:
ALL BACKFILL AND TRENCHING SHALL MEET THE REQUIREMENTS OF ASTM D2321



SANITARY PIPE BEDDING DETAIL
(CLASS B) N.T.S.



LOWER EXISTING WATERMAIN
N.T.S.

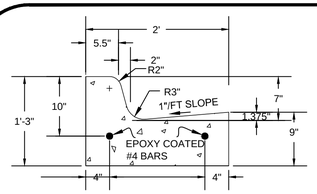
CITY OF TRAVERSE CITY MICHIGAN Engineering
The City of Traverse City Engineering Department
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
SANITARY SEWER AND WATER MAIN DETAIL SHEET

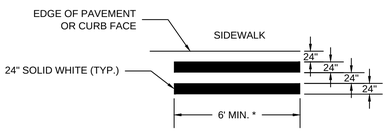
Revision/Issue	Date
BID SET	2/24/15

Date: 1-26-15
Project No.: 2015-01
Drawn by: JLC
Scale: N.T.S.
Sheet No.: 4 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Det-Note-Shts.dwg, 2/26/2015 2:21:32 PM, zcole



PROPOSED C4 CURB & GUTTER
N.T.S.



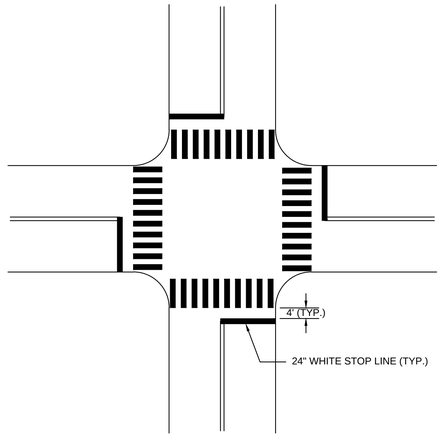
DETAIL OF MARKINGS

* WIDTH OF CROSSWALK TO EQUAL WIDTH OF THE ADJACENT CROSSWALK, BUT NOT LESS THAN 6 FEET.

NOTE:

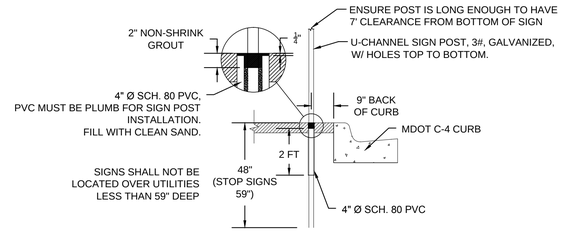
WHEN PRACTICAL, CROSSWALK LOCATION SHOULD AVOID CONFLICT WITH DRAINAGE INLET.

SPECIAL EMPHASIS CROSSWALK PAVEMENT MARKINGS
N.T.S.

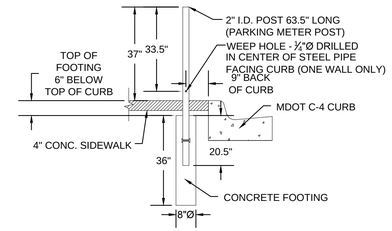


SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

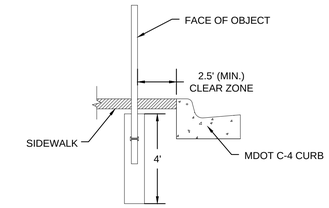
TWO-WAY APPROACH ROAD DETAIL
N.T.S.



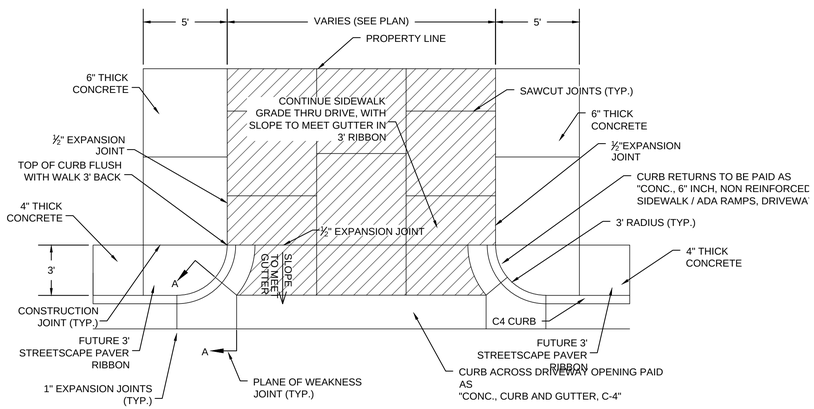
TRAFFIC SIGN POST DETAIL
N.T.S.

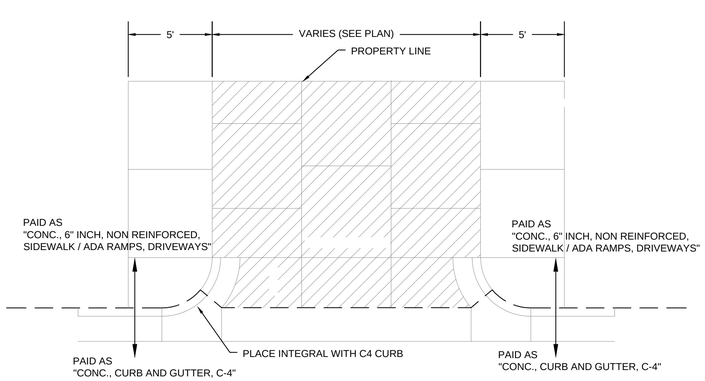


PARKING METER DETAIL
N.T.S.

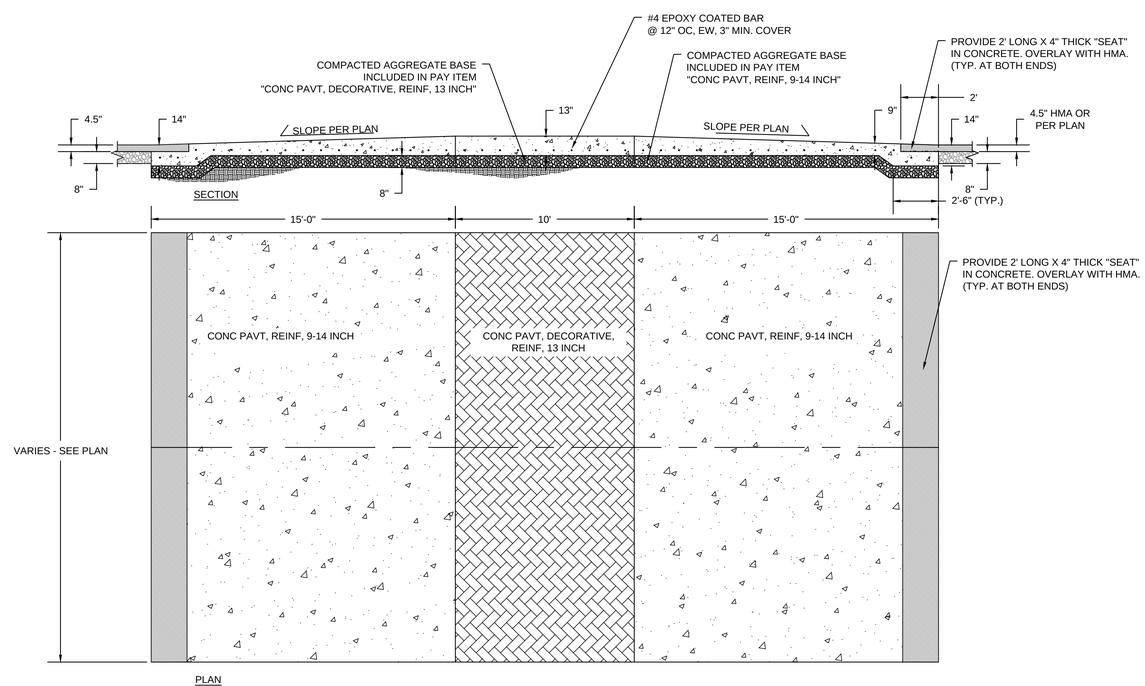


TYPICAL BANNER POLE LOCATION DETAIL
N.T.S.





TYPICAL DRIVEWAY OPENING DETAIL
N.T.S.



CONCRETE SPEED TABLE
N.T.S.

CITY OF TRAVERSE CITY
MICHIGAN
Engineering

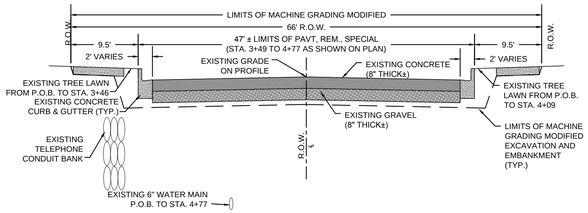
The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

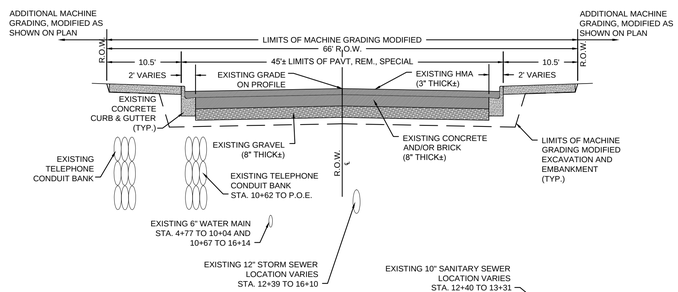
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
STREETSCAPE DETAIL SHEET

Revision/Issue	Date
BID SET	2/24/15

Date: 1-26-15
Project No.: 2015-01
Drawn by: JLC
Scale: N.T.S.
Sheet No.: 5 OF 27



EXISTING STREET SECTION (WEST FRONT ST.) STA. P.O.B. TO STA. 4+77
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
EXISTING 6" WATER MAIN CROSSES CENTERLINE AT STA. 4+22 TO SERVICE
EXISTING STORM SEWER CROSSES CENTERLINE AT STA. 4+14, 4+50
MAPLE ST. ADDITIONAL AREAS FOR PAVT, REM., SPECIAL SHOWN ON PLAN.
INTERSECTION LIMITS SHOWN ON PLAN.



EXISTING STREET SECTION (WEST FRONT ST.) STA. 4+77 TO P.O.E.
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
EXISTING STORM CROSSES CENTERLINE AT STA. 9+96,12+37, 13+86, 15+99. EXISTING SANITARY CROSSES CENTERLINE AT STA. 10+42, 12+40, 16+23.
EXISTING WATER MAIN CROSSES CENTERLINE AT STA. 10+15, 16+11.
EXISTING COMMUNICATIONS CONDUIT CROSSES CENTERLINE AT STA. 10+60 AND 15+94.
EXISTING 112" X 159" STRUCTURAL PLATE CONDUIT CROSSES CENTERLINE AT STA. 10+32.
ADDITIONAL AREAS FOR PAVT, REM., SPECIAL SHOWN ON PLAN.
INTERSECTION LIMITS SHOWN ON PLAN.

HMA APPLICATION TABLE				
MIXTURE **	PAY ITEM	APPROXIMATE RATE (lbs/syd)	PERFORMANCE GRADE	TYPE
4E10	HMA, 4E10	245	64 - 28	TOP COURSE (AWI = 260)
4E10	HMA, 4E10	250	64 - 28	LEVELING COURSE
* HMA BOND COAT 0.05 - 0.15 GAL/SYD (FOR INFORMATION ONLY)				

** SHALL BE AS PER MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. EXCEPT AS SUPERSEDED IN THE CONTRACT SPECIFICATIONS.

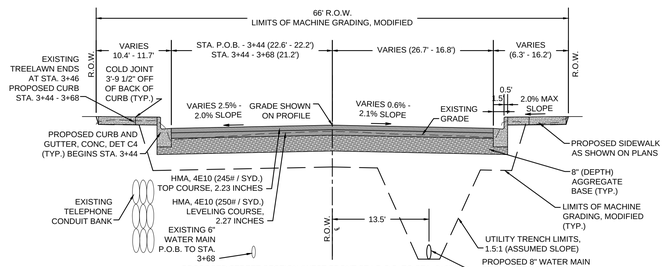
THE ITEM FOR MACHINE GRADING, MODIFIED SHALL INCLUDE ALL REQUIRED EXCAVATION AND/OR EMBANKMENT TO DEVELOP THE PROPOSED CROSS SECTION AND ADDITIONAL ITEMS REFERENCED IN THE SPECIAL PROVISION, SEE PROPOSAL. THE ESTIMATED EARTHWORK QUANTITIES PROVIDED HEREIN ARE FOR INFORMATION ONLY. NO UNIT PRICE ADJUSTMENTS OR CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED UNLESS THERE ARE CHANGED CONDITIONS OR WORK LIMITS AS DETERMINED BY THE ENGINEER. ALL REQUIRED EMBANKMENT SHALL BE CLASS II. GRADING FOR SIDEWALKS AND RAMPS TO MEET REQUIRED ADA SLOPES IS INCLUDED IN MACHINE GRADING, MODIFIED. PROTECTION OF EXISTING TREES NOT DESIGNATED FOR REMOVAL SHALL BE INCLUDED IN THE ITEM FOR MACHINE GRADING, MODIFIED.

EXCAVATION, EARTH, 475 CYD
EMBANKMENT, (CIP), 1400 CYD

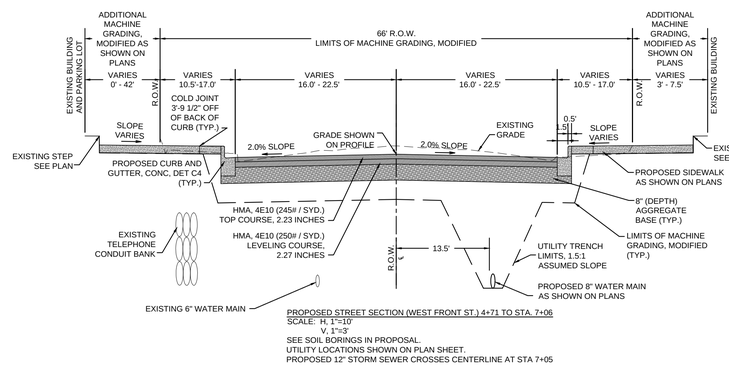
NOTES:
1. LOCATION AND SIZE OF EXISTING TELEPHONE CONDUIT BANK IS APPROXIMATE. CONTRACTOR SHALL HAND DIG TO LOCATE AS NEEDED.

2. UTILITY TRENCH SIDE SLOPES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL ADJUST SLOPES BASED ON ACTUAL SOIL TYPES/CONDITIONS IN ACCORDANCE WITH MIOSHA RULES.

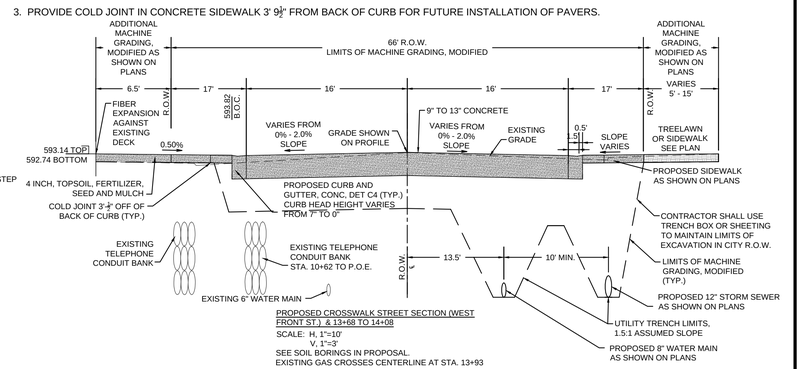
3. PROVIDE COLD JOINT IN CONCRETE SIDEWALK 3' 9½" FROM BACK OF CURB FOR FUTURE INSTALLATION OF PAVERS.



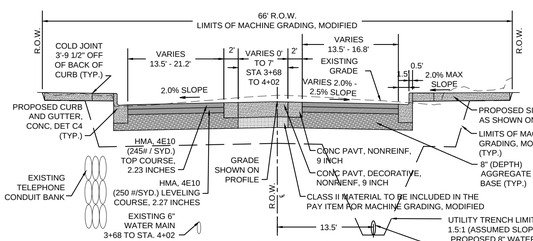
PROPOSED STREET SECTION (WEST FRONT ST.) P.O.B. TO STA. 3+68
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 8" WATER MAIN CROSSES CENTERLINE AT STA 0+73.



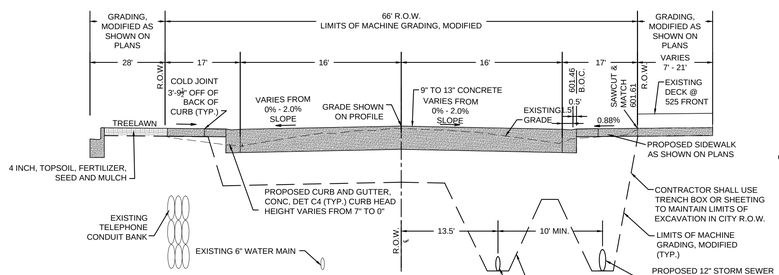
PROPOSED STREET SECTION (WEST FRONT ST.) 4+71 TO STA. 7+06
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA 7+05



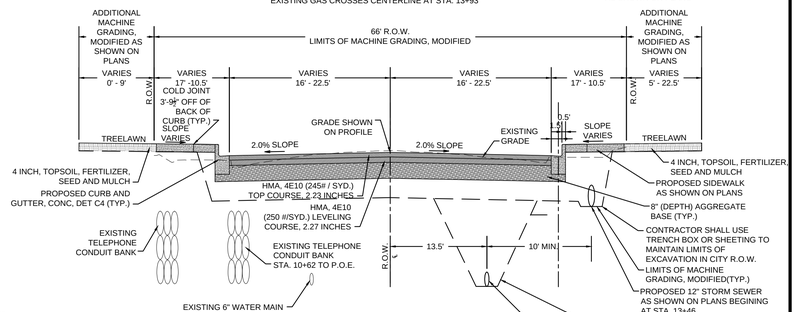
PROPOSED CROSSWALK STREET SECTION (WEST FRONT ST.) & 13+68 TO 14+08
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
EXISTING GAS CROSSES CENTERLINE AT STA. 13+93



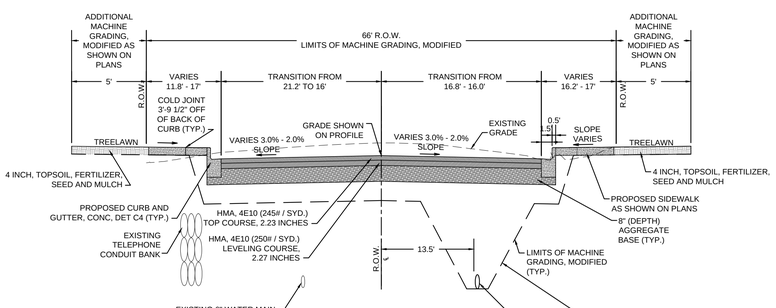
PROPOSED STREET SECTION (WEST FRONT ST.) STA. 3+68 TO STA. 4+02
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA 3+73.



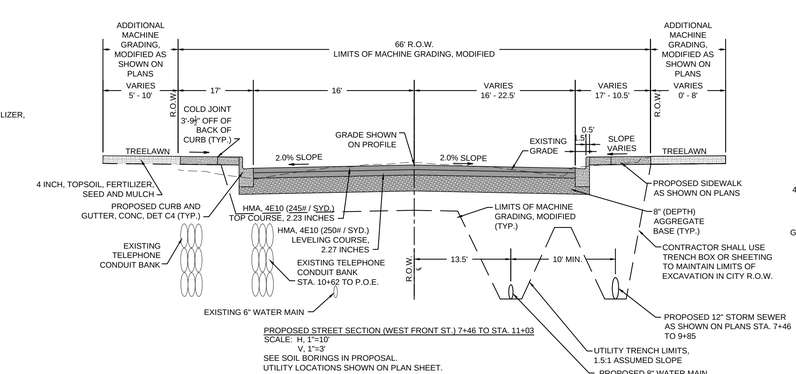
PROPOSED CROSSWALK STREET SECTION (WEST FRONT ST.) 7+06 TO 7+46
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.



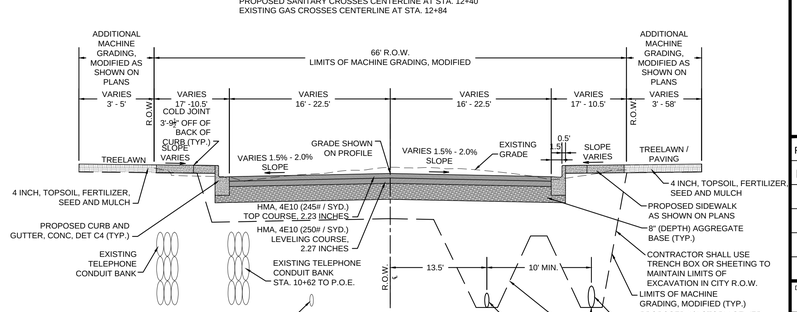
PROPOSED STREET SECTION (WEST FRONT ST.) 11+03 TO STA. 13+68
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA. 12+83 & 13+45
PROPOSED WATERMAIN CROSSES CENTERLINE AT STA. 12+55
PROPOSED SANITARY CROSSES CENTERLINE AT STA. 12+40
EXISTING GAS CROSSES CENTERLINE AT STA. 12+84



PROPOSED STREET SECTION (WEST FRONT ST.) 4+02 TO STA. 4+71
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA. 4+27
PROPOSED WATERMAIN CROSSES CENTERLINE AT STA. 4+41



PROPOSED STREET SECTION (WEST FRONT ST.) 7+46 TO STA. 11+03
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA. 9+88
EXISTING WATER MAIN CROSSES CENTERLINE AT STA. 10+16
PROPOSED WATERMAIN CROSSES CENTERLINE AT STA. 10+65
EXISTING AT&T CONDUIT BANK CROSSES CENTERLINE AT STA. 10+60
EXISTING STREAM CULVERT CROSSES CENTERLINE AT STA. 10+32
EXISTING GAS CROSSES CENTERLINE AT STA. 10+14
EXISTING SANITARY SEWER CROSSES CENTERLINE AT STA. 10+42



PROPOSED STREET SECTION (WEST FRONT ST.) 14+08 TO P.O.E.
SCALE: H, 1"=10'
V, 1"=3'
SEE SOIL BORINGS IN PROPOSAL.
UTILITY LOCATIONS SHOWN ON PLAN SHEET.
PROPOSED 12" STORM SEWER CROSSES CENTERLINE AT STA. 15+44 & 16+24
EXISTING SANITARY CROSSES CENTERLINE AT STA. 16+24
EXISTING WATER MAIN CROSSES CENTERLINE AT STA. 16+11
EXISTING AT&T CONDUIT BANK CROSSES CENTERLINE AT STA. 15+93
EXISTING UNDERGROUND POWER CONDUITS AT STA. 16+40 & 16+57
EXISTING GAS CROSSES CENTERLINE AT STA. 16+57

CITY OF TRAVERSE CITY MICHIGAN Engineering

The City of Traverse City Engineering Department
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
CROSS SECTION DETAIL SHEET

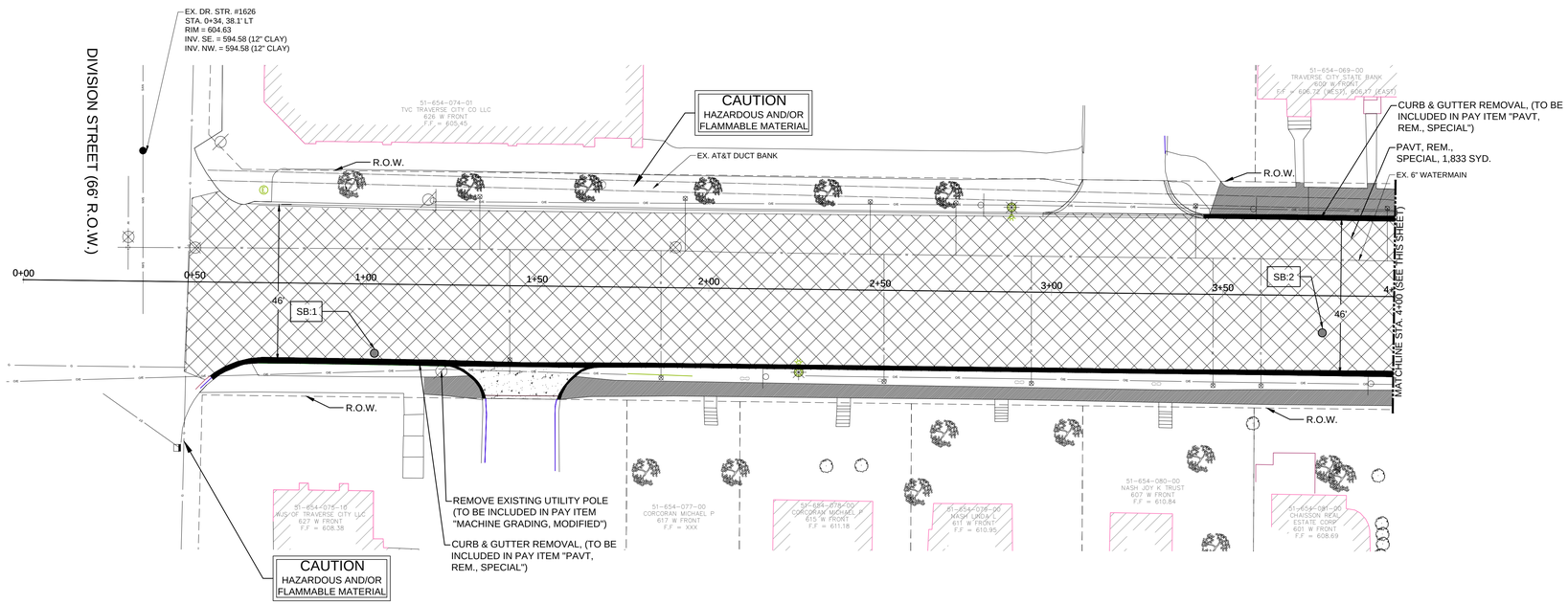
Revision/Issue	Date
BID SET	2/24/15

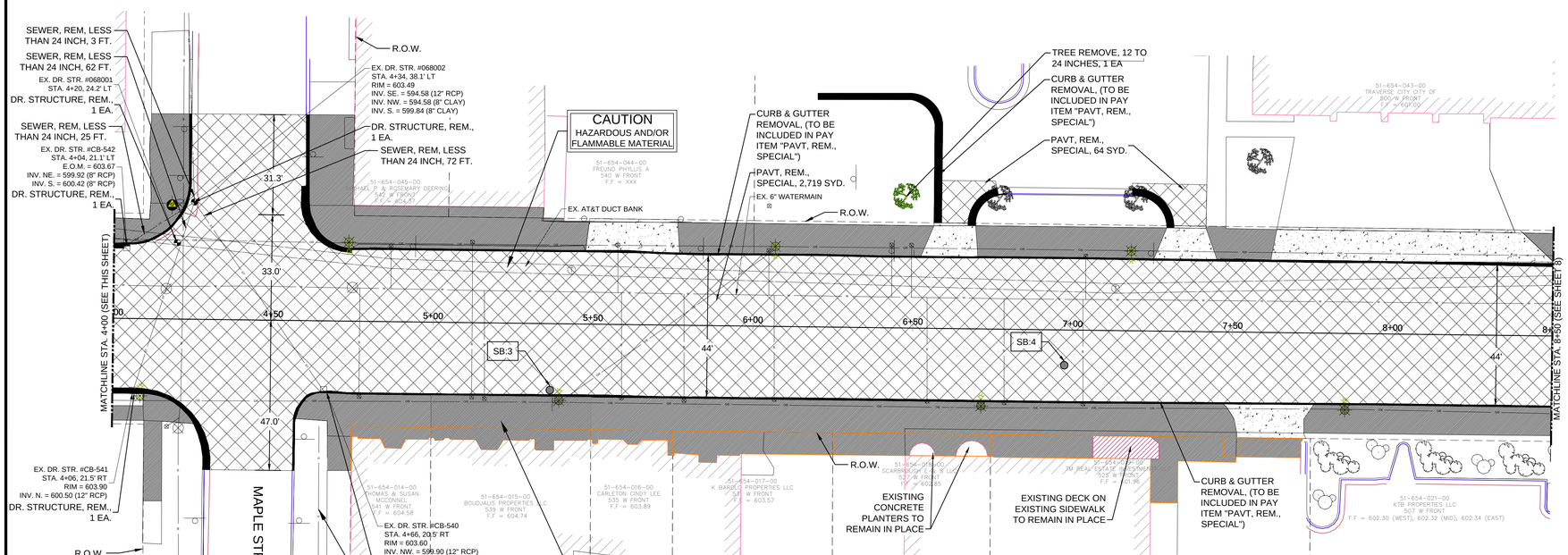
Date: 1-27-15
Project No.: 2015-01
Drawn by: JLC
Scale: AS SHOWN
Sheet No.: 6 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Cross Section Sheet-6.dwg, 2/26/2015 2:21:44 PM, zcole

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Rem-Sht7.dwg, 2/26/2015 2:22:04 PM, zcole

FRONT STREET (R.O.W. 66')





N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROPERTY CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- BEEHIVE GRATE CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- GAS MAIN
- WATERMAIN
- ELECTRIC
- GRADING LIMITS
- EXISTING STORM
- EXISTING SANITARY
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MAILBOX
- SOIL BORING LOCATION

LEGEND

- DRIVEWAY, REMOVE, (GRAVEL) (REMOVAL PAID AS MACHINE GRADING, MODIFIED)
- PAVT, REM., SPECIAL (CONCRETE)
- PAVT, REM., SPECIAL (HMA DRIVEWAY)
- PAVT, REM., SPECIAL (CONCRETE DRIVEWAYS)
- PAVT, REM., SPECIAL (HMA)
- CURB & GUTTER, REMOVE (TO BE INCLUDED IN PAY ITEM "Pavt, Rem., Special")
- SIDEWALK, REM
- SIDEWALK, REM WITH SNOW MELT PIPING **

QUANTITY DESCRIPTION THIS SHEET		
ITEM DESCRIPTION	UNIT	QUANTITY
MOBILIZATION/TRAFFIC CONTROL	LSUM.	1
DR. STRUCTURE, REM.	EA.	5
PAVT, REM., SPECIAL	SYD.	4,616
SIDEWALK, REM	SYD.	1,232
SEWER, REM, LESS THAN 24 INCH	FT.	162
TREE REMOVE, 12 TO 24 INCHES	EA.	1
TEMPORARY WOOD SIDEWALK	FT.	480
TEMPORARY CONCRETE BARRIER, SPECIAL	FT.	500
SUBGRADE UNDERCUTTING, TYPE II	CYD.	200

ESTIMATED DRIVEWAY REMOVALS		
STATION & OFFSET	TYPE	QUANTITY (SFT.)
1+46, 23.7 R	CONC.	265
5+63, 22.5 L	CONC.	301
6+61, 22.1 L	CONC.	166
7+36, 22.1 L	CONC.	170
7+62, 22.2 R	CONC.	248
8+06, 22.6 L	CONC.	856

NOTES:

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. SOIL BORING LOCATIONS APPROXIMATE. SEE GEOTECHNICAL REPORT FOR MORE INFORMATION.

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

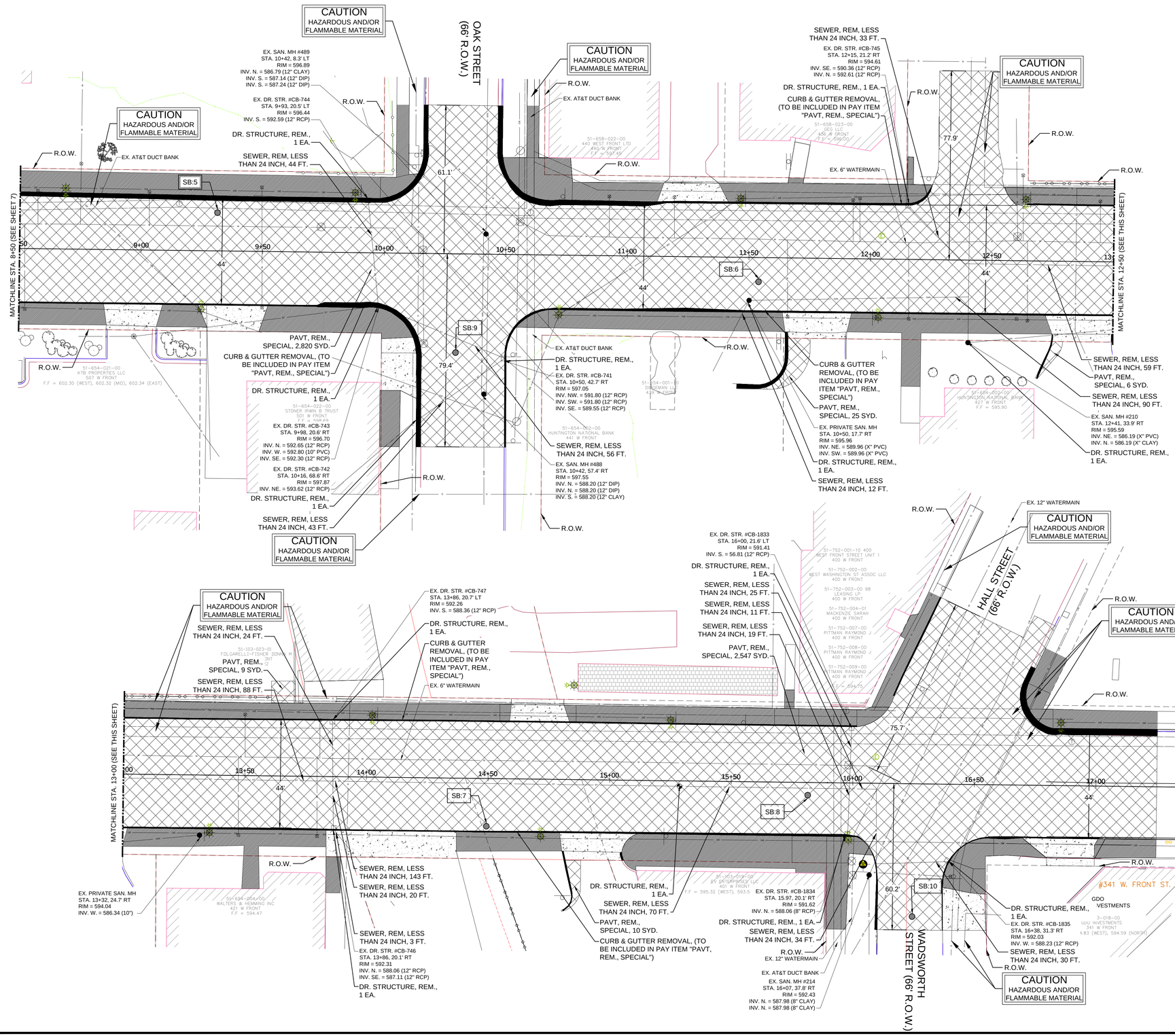
CITY OF TRAVERSE
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
REMOVAL SHEET (P.O.B. TO STA. 8+50)

Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 7 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Rem-Sht8.dwg, 2/26/2015 2:22:26 PM, zcole

FRONT STREET (R.O.W. 66')



N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROPERTY CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- BEEHIVE GRATE CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- GAS MAIN
- WATERMAIN
- ELECTRIC
- GRADING LIMITS
- EXISTING STORM
- EXISTING SANITARY
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MAILBOX
- SOIL BORING LOCATION

LEGEND

- DRIVEWAY, REMOVE, (GRAVEL) (REMOVAL PAID AS MACHINE GRADING, MODIFIED)
- PAVT, REM., SPECIAL (CONCRETE)
- PAVT, REM., SPECIAL (HMA DRIVEWAY)
- PAVT, REM., SPECIAL (CONCRETE DRIVEWAYS)
- PAVT, REM., SPECIAL (HMA)
- CURB & GUTTER, REMOVE (TO BE INCLUDED IN PAY ITEM "Pavt, Rem., Special")
- SIDEWALK, REM

QUANTITY DESCRIPTION THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
DR. STRUCTURE, REM.	EA.	13
PAVT, REM., SPECIAL	SYD.	5,783
SIDEWALK, REM	SYD.	1,458
SEWER, REM, LESS THAN 24 INCH	FT.	801
TEMPORARY WOOD SIDEWALK	FT.	920

ESTIMATED DRIVEWAY REMOVALS

STATION & OFFSET	TYPE	QUANTITY (SFT.)
8+98, 21.6 R	CONC.	250
9+38, 22.3 R	CONC.	263
10+13, 49.2 R	CONC.	319
11+27, 22.7 L	CONC.	252
11+78, 22.4 R	CONC.	280
12+87, 22.2 R	CONC.	286
14+10, 22.1 R	CONC.	582
14+71, 23.4 L	CONC.	219
14+96, 22.0 R	CONC.	293
16+36, 51.4 R	CONC.	292
16+91, 21.9 R	CONC.	264

NOTES:

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. SOIL BORING LOCATIONS APPROXIMATE. SEE GEOTECHNICAL REPORT FOR MORE INFORMATION.

CITY OF TRAVERSE Engineering MICHIGAN

The City of Traverse City Engineering Department

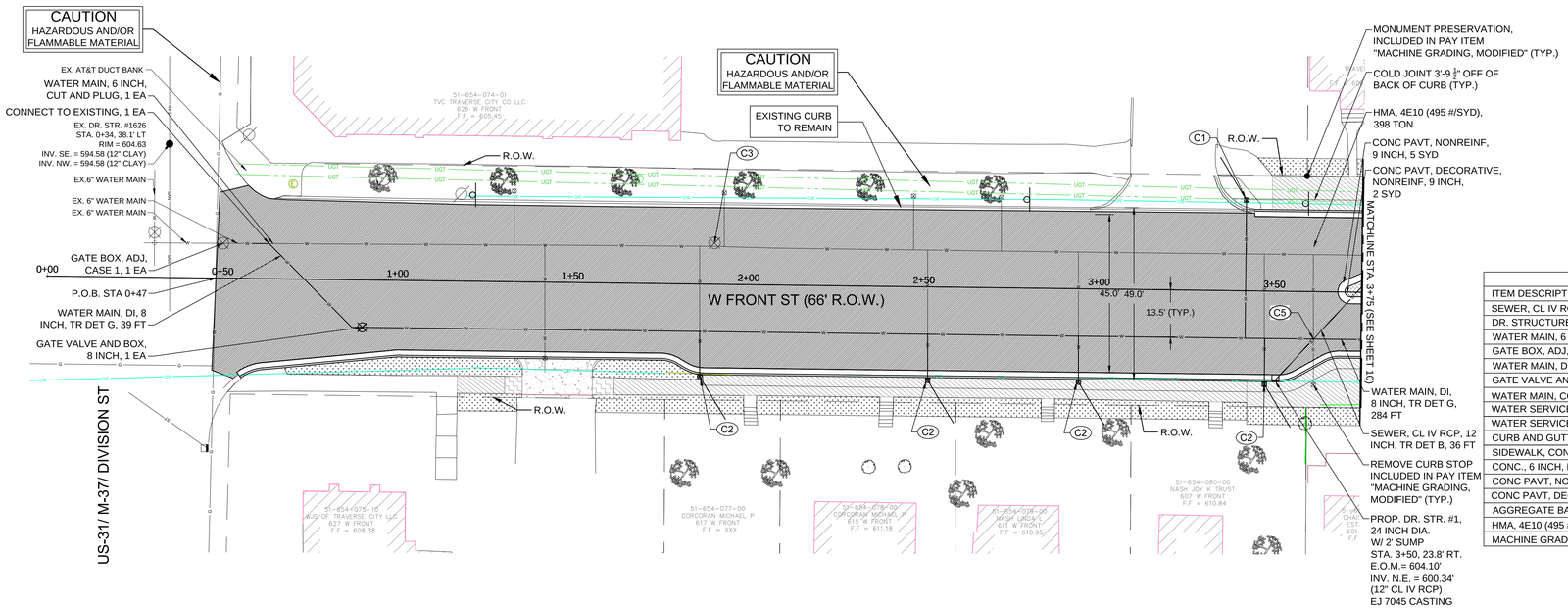
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

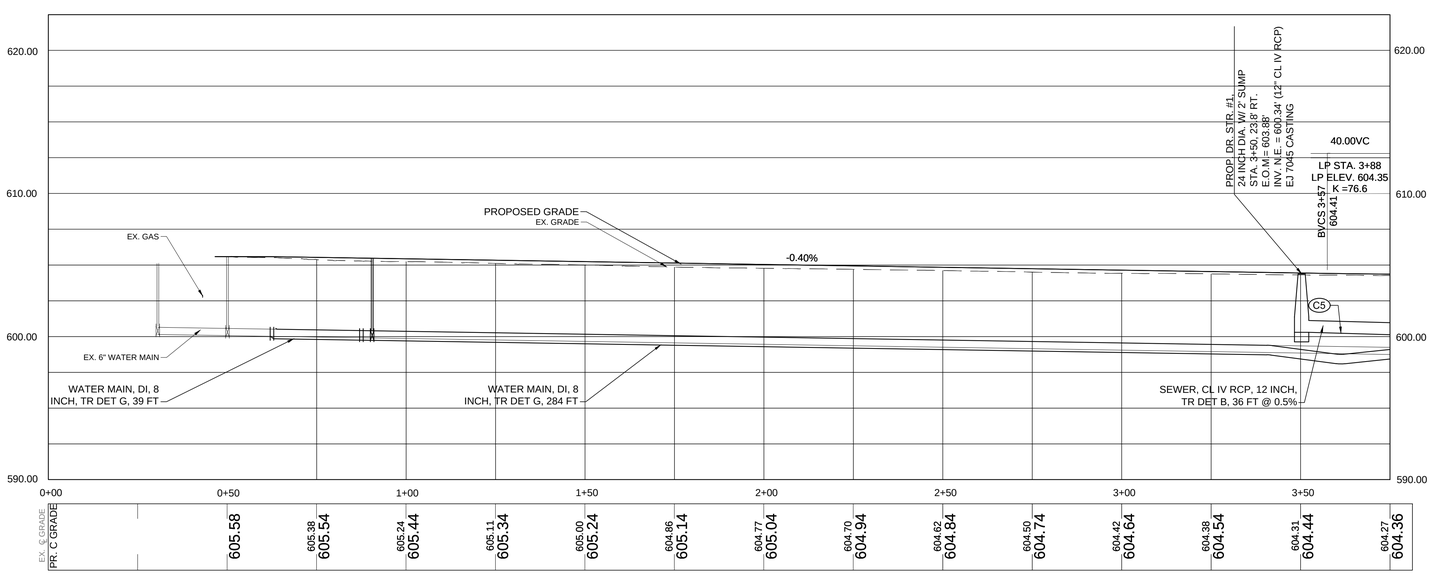
CITY OF TRAVERSE
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
REMOVAL SHEET (STA. 8+50 TO P.O.E.)

Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 8 OF 27

FRONT STREET (66' R.O.W.)





ESTIMATED DRIVEWAY/WALK QUANTITIES			
STATION & OFFSET	DRIVEWAY OPENING (FT)	DRIVEWAY, NON-REINFORCED, 6 INCH (SYD)	SIDEWALK RAMP, CONC, 6 INCH (SFT)
1+45, 25.7 R	20	26	

ESTIMATED QUANTITIES THIS SHEET		
ITEM DESCRIPTION	UNIT	QUANTITY
SEWER, CL IV RCP, 12 INCH, TR DET B	FT	36
DR. STRUCTURE, 24 INCH, EJ 7045 CASTING	EA	1
WATER MAIN, 6 INCH, CUT AND PLUG	EA	1
GATE BOX, ADJ, CASE 1	EA	1
WATER MAIN, DI, 8 INCH, TR DET G	FT	323
GATE VALVE AND BOX, 8 INCH	EA	1
WATER MAIN, CONNECT TO EXISTING	EA	1
WATER SERVICE, SHORT SIDE	EA	4
WATER SERVICE, LONG SIDE	EA	1
CURB AND GUTTER, CONC, DET C4	FT	355
SIDEWALK, CONC, 4 INCH	SFT	2121
CONC., 6 INCH, NON-REINFORCED, SIDEWALK/ADA RAMPS, DRIVEWAYS	SFT	287
CONC PAVT, NONREINF, 9 INCH	SYD	5
CONC PAVT, DECORATIVE, NONREINF, 9 INCH	SYD	2
AGGREGATE BASE, 8 INCH	SYD	1609
HMA, 4E10 (495 #/SYD)	TON	399
MACHINE GRADING, MODIFIED	STA	3.30

N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

HATCH LEGEND

- PROPOSED LAWN AREA
- PROPOSED HMA
- PROPOSED SIDEWALK RAMP, ADA
- PROPOSED SIDEWALKS CONC., 4"
- PROPOSED SIDEWALK, CONC, 6 INCH
- PROPOSED DRIVEWAY NON REINFORCED CONC, 6 INCH
- CONC PAVT, DECORATIVE, NON REINFORCED, 9 INCH

CONSTRUCTION NOTES

C1 WATER SERVICE, LONG SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C2 WATER SERVICE, SHORT SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C3 REMOVE GATE VALVE BOX, INCLUDED IN PAY ITEM "MACHINE GRADING MODIFIED"

C4 MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION OF WATER MAIN FROM ALL SEWERS

C5 MAINTAIN 18" VERTICAL SEPARATION OF WATER MAIN FROM ALL SEWERS. LOWERING OF PROPOSED WATER MAIN REQUIRED TO MAINTAIN 18" VERTICAL SEPARATION FROM SEWERS SHALL BE INCLUDED IN PAY ITEM "WATER MAIN, DI, 8 INCH, TR DET G.

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. WATERMAIN AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH CITY OF TRAVERSE CITY TECHNICAL SPECIFICATIONS FOR WATERMAINS AND APPURTENANCES AND AWWA STANDARDS.
3. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION. ADDITIONAL LATERALS MAY ENCOUNTERED. FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO CONSTRUCTION.
4. CONNECT TO EXISTING SHALL INCLUDE UP TO 20 FEET OF REPLACEMENT PIPE AND ALL FITTINGS NECESSARY TO CONNECT TO EXISTING UTILITIES.

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PLAN AND PROFILE SHEET (P.O.B. TO STA. 3+75)

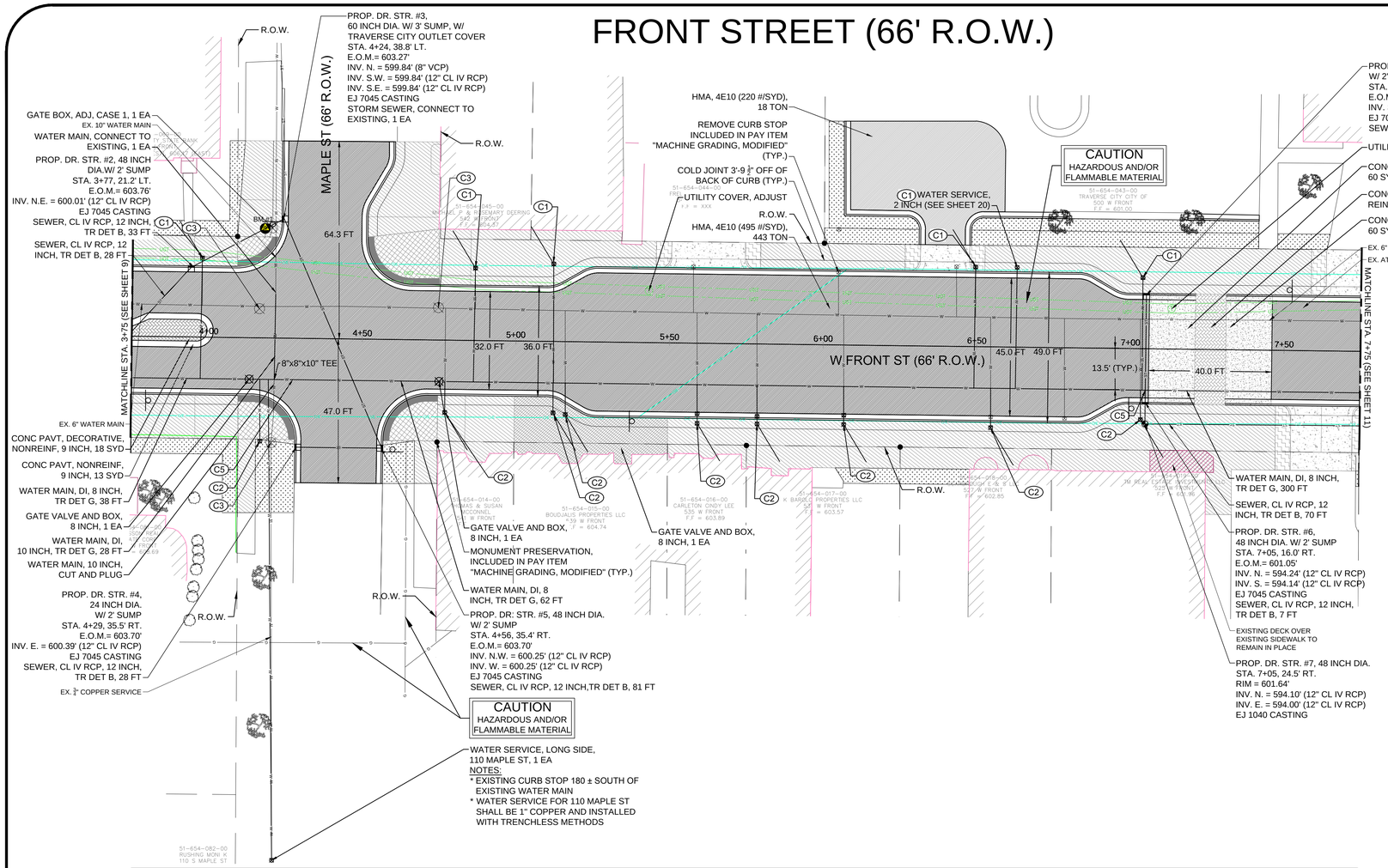
Revision/Issue	Date
BID SET	2-24-15

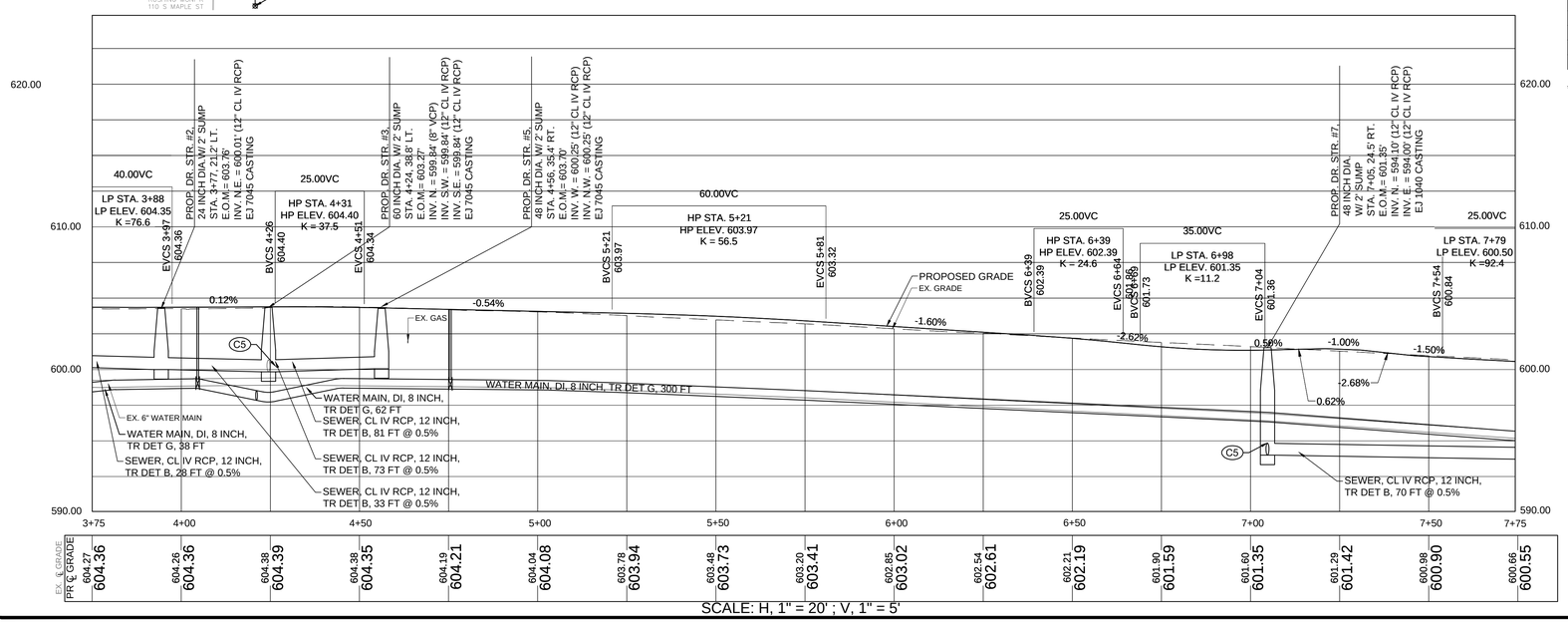
Date: 12-1-14
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 9 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Const-Sht9.dwg, 2/26/2015 2:22:57 PM, zcole

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Const-Sht10.dwg, 2/26/2015 2:23:41 PM, zcole

FRONT STREET (66' R.O.W.)





SCALE: H, 1" = 20' ; V, 1" = 5'

N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

BENCHMARK DATA

BENCHMARK #1
"A" IN TRAVERSE ON HYDRANT AT N.W. COR. OF MAPLE AND FRONT ST.
ELEV.= 606.29'

HATCH LEGEND

- PROPOSED LAWN AREA
- PROPOSED HMA
- PROPOSED SIDEWALK RAMP, ADA
- PROPOSED SIDEWALKS CONC., 4" WITH SIDEWALK HEATING **
- PROPOSED SIDEWALKS CONC., 4"
- PROPOSED SIDEWALK, CONC, 6 INCH
- PROPOSED DRIVEWAY NON REINFORCED CONC, 6 INCH
- CONC PAVT, DECORATIVE, NON REINFORCED, 9 INCH/ REINFORCED, 13 INCH
- CONC PAVT, REINF, 9-14 INCH, MODIFIED

ESTIMATED DRIVEWAY/WALK QUANTITIES

STATION & OFFSET	DRIVEWAY OPENING (FT)	DRIVEWAY, NON-REINFORCED, 6 INCH (SYD)	SIDEWALK RAMP, CONC, 6 INCH (SFT)
4+16, 24.5 L			96
4+18, 19.5 R			228
4+57, 21.2 L			344
4+63, 21.1 R			225
5+62, 24.3 L	24	24	
6+65, 24.6 L	16	16	
7+62, 18.2 R	20	47.5	

ESTIMATED QUANTITIES THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
AGGREGATE BASE, 8 INCH	SYD	1981
SEWER, CL IV RCP, 12 INCH, TR DET B	FT	282
DR. STRUCTURE, 24 INCH, EJ 7045 CASTING	EA	2
DR. STRUCTURE, 48 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	3
DR. STRUCTURE, 60 INCH, EJ 7045 CASTING, 3 FOOT SUMP	EA	1
DR. STRUCTURE, 48 INCH, EJ 1040 CASTING (STORM)	EA	1
STORM SEWER, CONNECT TO EXISTING	EA	1
UTILITY COVER, ADJUST	EA	2
CURB AND GUTTER, CONC, DET C4	FT	889
SIDEWALK, CONC, 4 INCH	SFT	9518
CONC., 6 INCH, NON-REINFORCED, SIDEWALK/ADA RAMPS, DRIVEWAYS	SFT	2097
CONC PAVT, DECORATIVE, NONREINF, 9 INCH	SYD	18
CONC PAVT, NONREINF, 9 INCH	SYD	13
CONC PAVT, REINF, 9-14 INCH	SYD	120
CONC PAVT, DECORATIVE, REINF, 13 INCH	SYD	40
DETECTABLE WARNING, CAST IN PLACE, REPLACEABLE, BRICK RED	FT	97
WATER MAIN, 10 INCH, CUT AND PLUG	EA	1
GATE BOX, ADJ, CASE 1	EA	1
WATER MAIN, DI, 8 INCH, TR DET G	FT	400
WATER MAIN, DI, 10 INCH, TR DET G	FT	28
GATE VALVE AND BOX, 8 INCH	EA	2
WATER MAIN, CONNECT TO EXISTING	EA	1
WATER SERVICE, SHORT SIDE	EA	9
WATER SERVICE, 2 INCH, LONG SIDE	EA	1
WATER SERVICE, LONG SIDE	EA	5
WATER SERVICE, LONG SIDE, 110 MAPLE ST	EA	1
HMA, 4E10 (495 #/SYD)	TON	443
HMA, 4E10 (220 #/SYD)	TON	18
TRAVERSE CITY OUTLET COVER	EA	1
MACHINE GRADING, MODIFIED	STA	4.00

** CONTRACTOR TO COORDINATE WITH OWNER OF STREET ST FOR OWNER INSTALLATION OF SNOW MELT PIPING WITHIN PROPOSED SIDEWALK.

CONSTRUCTION NOTES

C1 WATER SERVICE, LONG SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C2 WATER SERVICE, SHORT SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C3 REMOVE GATE VALVE BOX, INCLUDED IN PAY ITEM "MACHINE GRADING MODIFIED"

C4 MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION OF WATER MAIN FROM ALL SEWERS

C5 MAINTAIN 18" VERTICAL SEPARATION OF WATER MAIN FROM ALL SEWERS. LOWERING OF PROPOSED WATER MAIN REQUIRED TO MAINTAIN 18" VERTICAL SEPARATION FROM SEWERS SHALL BE INCLUDED IN PAY ITEM "WATER MAIN, DI, 8 INCH, TR DET G.

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. WATERMAIN AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH CITY OF TRAVERSE CITY TECHNICAL SPECIFICATIONS FOR WATERMAINS AND APPURTENANCES AND AWWA STANDARDS.
3. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION, ADDITIONAL LATERALS MAY ENCOUNTERED. FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO CONSTRUCTION.
4. CONNECT TO EXISTING SHALL INCLUDE UP TO 20 FEET OF REPLACEMENT PIPE AND ALL FITTINGS NECESSARY TO CONNECT TO EXISTING UTILITIES.

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

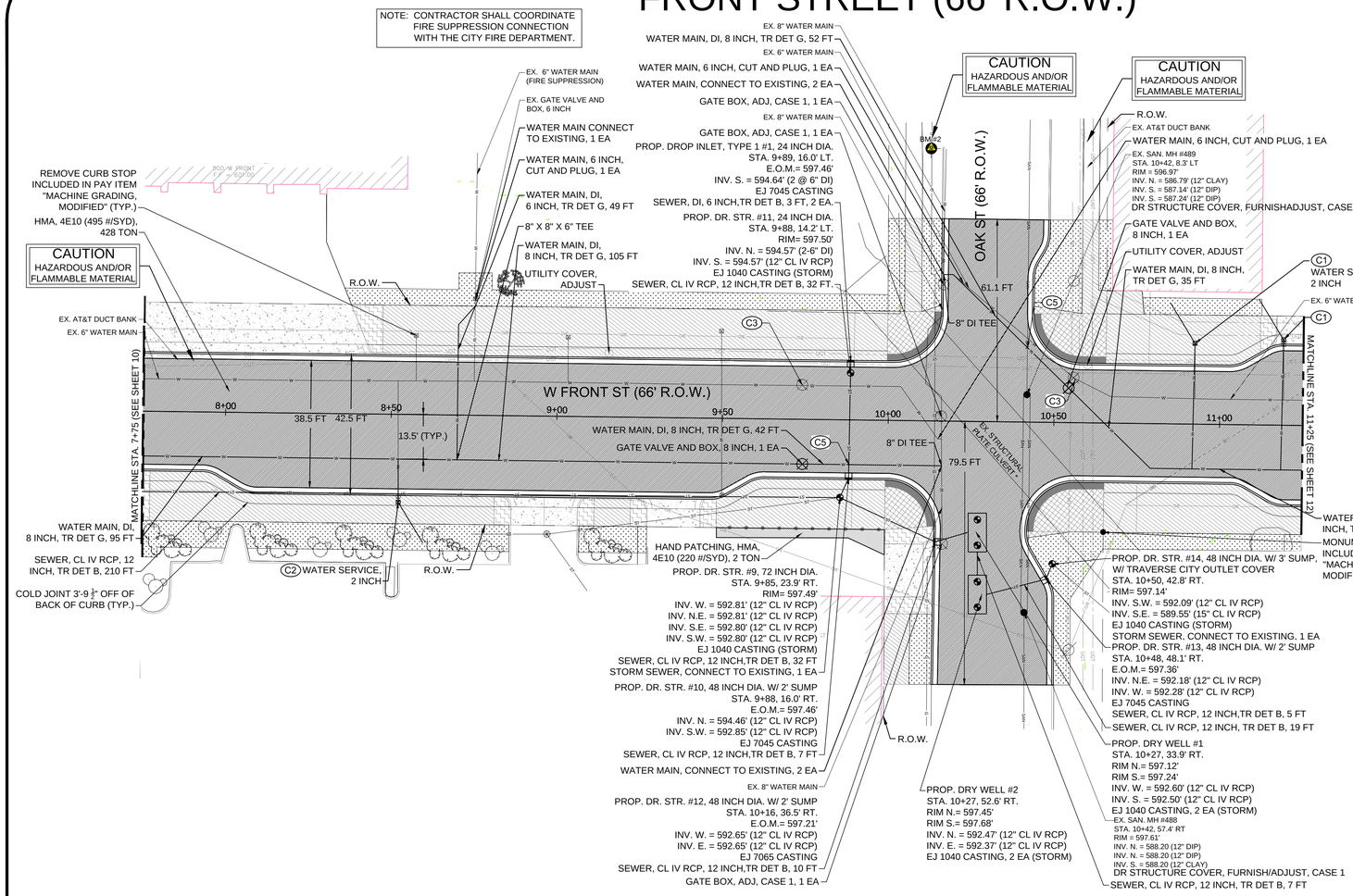
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PLAN AND PROFILE SHEET (STA. 3+75 TO STA. 7+75)

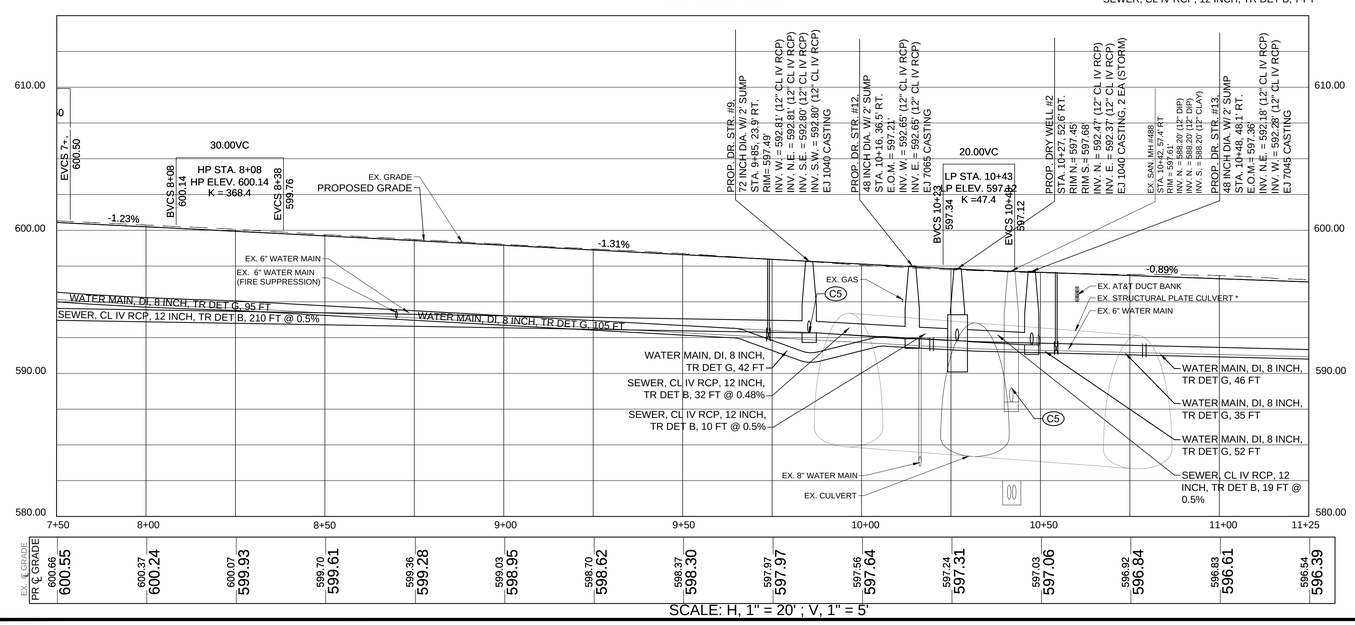
Revision/Issue	Date
BID SET	2-24-15

Date: 12-1-14
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 10 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Const-Sht11.dwg, 2/26/2015 2:24:26 PM, zcole

FRONT STREET (66' R.O.W.)





N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

ESTIMATED DRIVEWAY/WALK QUANTITIES			
STATION & OFFSET	DRIVEWAY OPENING (FT)	DRIVEWAY, NON-REINFORCED, 6 INCH (SYD)	SIDEWALK RAMP, CONC, 6 INCH (SFT)
6+01, 18.0 L	74	129	
8+96, 24.5 R	20	19	
9+36, 24.5 R	16	19	
10+08, 19.6 L			203
10+08, 21.1 R			168
10+14, 44.4 R	16	27	
10+49, 20.2 R			302
10+50, 20.7 L			297

ESTIMATED QUANTITIES THIS SHEET		
ITEM DESCRIPTION	UNIT	QUANTITY
AGGREGATE BASE, 8 INCH	SYD	1730
SEWER, CL IV RCP, 12 INCH, TR DET B	FT	322
SEWER, DI, 6 INCH, TR DET B	FT	6
DR. STRUCTURE, 48 INCH, EJ 7065 CASTING, 2 FOOT SUMP	EA	1
DR. STRUCTURE, 48 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	2
DR. STRUCTURE, 72 INCH, EJ 1040 CASTING (STORM)	EA	1
DR. STRUCTURE, 48 INCH, EJ 1040 CASTING (STORM), 3 FOOT SUMP	EA	1
DR. STRUCTURE, 24 INCH, EJ 1040 CASTING (STORM)	EA	1
DRY WELL, EJ 1040 CASTING, 2 EA (STORM)	EA	2
DROP INLET, TYPE 1, 24 INCH, EJ 7045 CASTING	EA	1
DR STRUCTURE COVER, FURNISH/ADJUST, CASE 1	EA	2
STORM SEWER, CONNECT TO EXISTING	EA	2
UTILITY COVER, ADJUST	EA	2
CURB AND GUTTER, CONC, DET C4	FT	849
SIDEWALK, CONC, 4 INCH	SFT	6172
CONC., 6 INCH, NON-REINFORCED, SIDEWALK/ADA RAMPS, DRIVEWAYS	SFT	3071
DETECTABLE WARNING, CAST IN PLACE, REPLACEABLE, BRICK RED	FT	103
WATER MAIN, 6 INCH, CUT AND PLUG	EA	3
GATE BOX, ADJ, CASE 1	EA	3
WATER MAIN, DI, 8 INCH, TR DET G	FT	375
WATER MAIN, DI, 6 INCH, TR DET G	FT	49
GATE VALVE AND BOX, 8 INCH	EA	2
WATER MAIN, CONNECT TO EXISTING	EA	5
WATER SERVICE, 2 INCH, SHORT SIDE	EA	1
WATER SERVICE, 2 INCH, LONG SIDE	EA	1
WATER SERVICE, LONG SIDE	EA	1
HMA, 4E10 (495 #/SYD)	TON	428
HAND PATCHING, HMA, 4E10 (220 #/SYD)	TON	2
TRAVERSE CITY OUTLET COVER	EA	1
MACHINE GRADING, MODIFIED	STA	3.50

* EXISTING STRUCTURAL PLATE CULVERT; CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3 FEET OF COVER AND PROVIDE STEEL PLATE BRIDGING AS NEEDED OVER EXISTING 112" X 159" CULVERT AT STA. 9+90 TO 10+67. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CULVERT FROM DAMAGE DURING CONSTRUCTION.

BENCHMARK DATA

BENCHMARK #2
X IN FLANGE BOLT IN HYDRANT NO. 724 ON W. SIDE OF OAK ST. N. OF FRONT ST.
ELEV.= 597.08

HATCH LEGEND

- PROPOSED LAWN AREA
- PROPOSED HMA
- PROPOSED SIDEWALK RAMP, ADA
- PROPOSED SIDEWALKS CONC., 4"
- PROPOSED SIDEWALK, CONC, 6 INCH
- PROPOSED DRIVEWAY NON REINFORCED CONC, 6 INCH
- CONC PAVT, DECORATIVE, REINFORCED, 13 INCH

CONSTRUCTION NOTES

C1 WATER SERVICE, LONG SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C2 WATER SERVICE, SHORT SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C3 REMOVE GATE VALVE BOX, INCLUDED IN PAY ITEM "MACHINE GRADING MODIFIED"

C4 MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION OF WATER MAIN FROM ALL SEWERS

C5 MAINTAIN 18" VERTICAL SEPARATION OF WATER MAIN FROM ALL SEWERS. LOWERING OF PROPOSED WATER MAIN REQUIRED TO MAINTAIN 18" VERTICAL SEPARATION FROM SEWERS SHALL BE INCLUDED IN PAY ITEM "WATER MAIN, DI, 8 INCH, TR DET G.

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. WATERMAIN AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH CITY OF TRAVERSE CITY TECHNICAL SPECIFICATIONS FOR WATERMAINS AND APPURTENANCES AND AWWA STANDARDS.
3. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION, ADDITIONAL LATERALS MAY ENCOUNTERED. FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO CONSTRUCTION.
4. CONNECT TO EXISTING SHALL INCLUDE UP TO 20 FEET OF REPLACEMENT PIPE AND ALL FITTINGS NECESSARY TO CONNECT TO EXISTING UTILITIES.

CITY OF TRAVERSE CITY MICHIGAN Engineering

The City of Traverse City Engineering Department

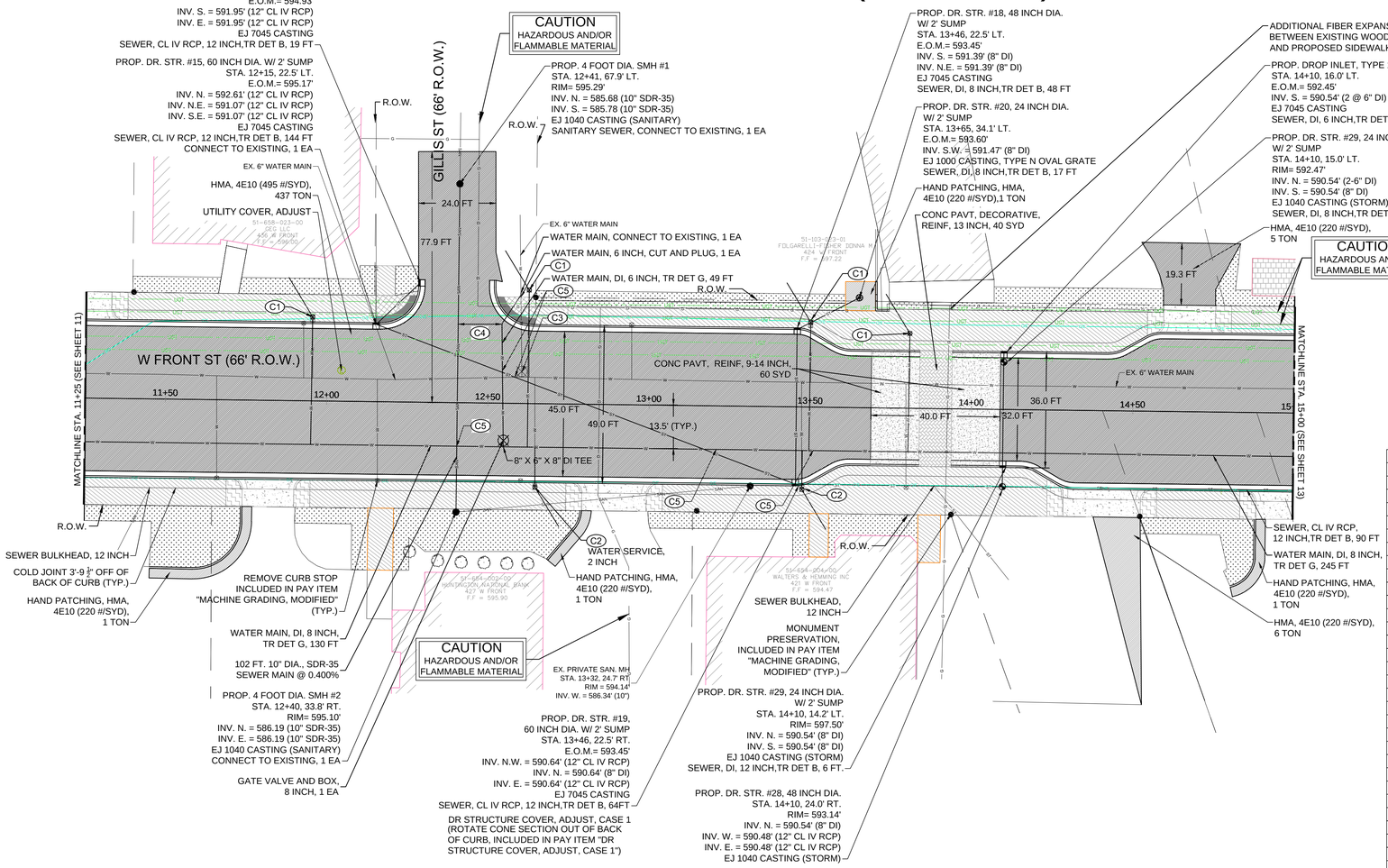
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

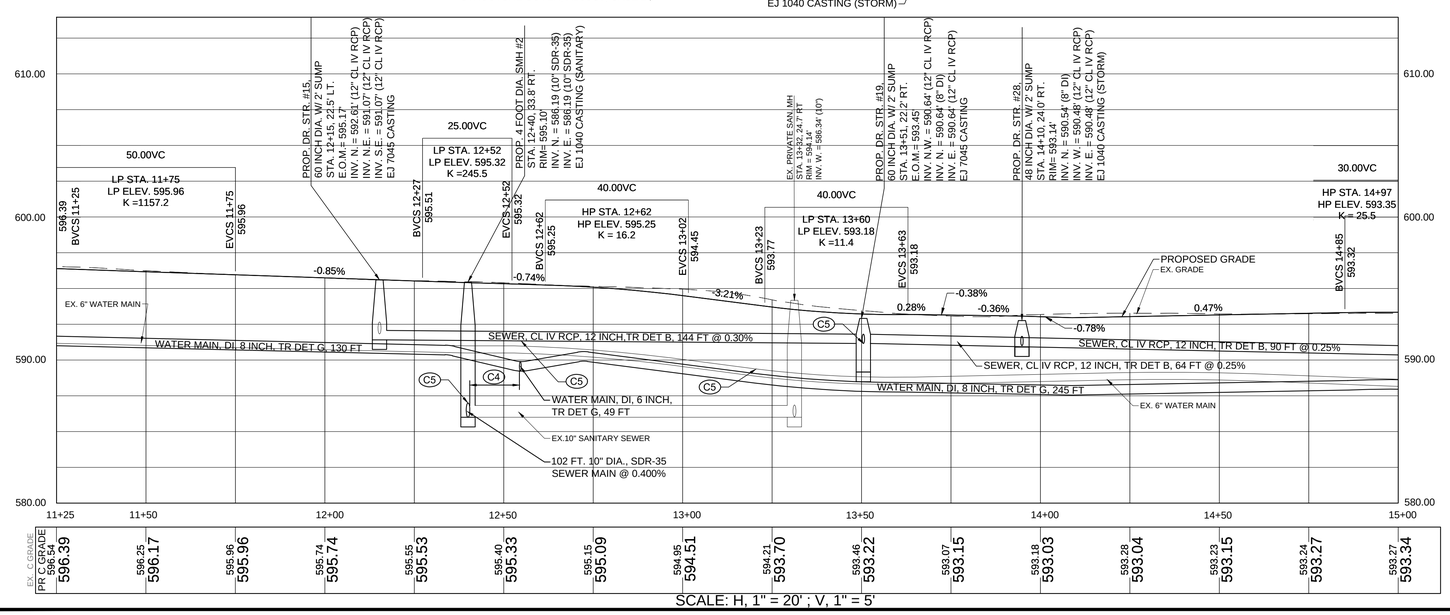
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PLAN AND PROFILE SHEET (STA. 7+75 TO STA. 11+25)

Revision/Issue	Date
BID SET	2-24-15

Date: 12-1-14
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 11 OF 27

FRONT STREET (66' R.O.W.)





SCALE: H, 1" = 20' ; V, 1" = 5'

N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

HATCH LEGEND

- PROPOSED LAWN AREA
- PROPOSED HMA
- PROPOSED SIDEWALK RAMP, ADA
- PROPOSED SIDEWALKS CONC., 4"
- PROPOSED SIDEWALK, CONC, 6 INCH
- PROPOSED DRIVEWAY NON REINFORCED CONC, 6 INCH
- CONC PAVT, DECORATIVE, REINFORCED, 13 INCH
- CONC PAVT, REINF, 9-14 INCH, MODIFIED

ESTIMATED DRIVEWAY/WALK QUANTITIES

STATION & OFFSET	DRIVEWAY OPENING (FT)	DRIVEWAY, NON-REINFORCED, 6 INCH (SYD)	SIDEWALK RAMP, CONC, 6 INCH (SFT)
11+27, 24.2 L	16	15	
11+82, 24.9 R	16	15	
12+23, 25.0 L			90
12+60, 24.9 L			77
12+89, 24.2 R	20	19	
14+41, 24.0 R	24	24	
14+68, 24.3 L	16	15	
14+96, 24.5 R	16	16	

ESTIMATED QUANTITIES THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
AGGREGATE BASE, 8 INCH	SYD	1878
SEWER, CL IV RCP, 12 INCH, TR DET B	FT	317
SEWER, DI, 6 INCH, TR DET B	FT	6
SEWER, DI, 8 INCH, TR DET B	FT	103
DR. STRUCTURE, 24 INCH, EJ 7045 CASTING	EA	3
DR. STRUCTURE, 48 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	1
DR. STRUCTURE, 60 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	2
DR. STRUCTURE, 24 INCH, EJ 1000 CASTING, TYPE N OVAL GRATE	EA	1
DR. STRUCTURE, 24 INCH, EJ 1040 CASTING (STORM)	EA	1
DR. STRUCTURE, 48 INCH, EJ 1040 CASTING (STORM)	EA	1
DROP INLET, TYPE 1, 24 INCH, EJ 7045 CASTING	EA	1
STORM SEWER, CONNECT TO EXISTING	EA	1
UTILITY COVER, ADJUST	EA	1
SEWER BULKHEAD, 12 INCH	EA	2
4 FOOT DIA. SANITARY MANHOLE, EJ 1040 CASTING (SANITARY)	EA	2
SEWER, SDR-35, 10 INCH, TR DET B	FT	102
SANITARY SEWER, CONNECT TO EXISTING	EA	2
SEWAGE BYPASS PUMPING AND FLOW CONTROL	LSUM	1
DR STRUCTURE COVER, ADJUST, CASE 1	EA	1
CURB AND GUTTER, CONC, DET C4	FT	895
CURB AND GUTTER, CONC, DET E	FT	86
SIDEWALK, CONC, 4 INCH	SFT	6089
CONC., 6 INCH, NON-REINFORCED, SIDEWALK/ADA RAMPS, DRIVEWAYS	SFT	1418
CONC PAVT, REINF, 9-14 INCH	SYD	120
CONC PAVT, DECORATIVE, REINF, 13 INCH	SYD	40
DETECTABLE WARNING, CAST IN PLACE, REPLACEABLE, BRICK RED	FT	30
WATER MAIN, 6 INCH, CUT AND PLUG	EA	1
WATER MAIN, DI, 8 INCH, TR DET G	FT	375
WATER MAIN, DI, 6 INCH, TR DET G	FT	49
GATE VALVE AND BOX, 8 INCH	EA	1
WATER MAIN, CONNECT TO EXISTING	EA	1
WATER SERVICE, 2 INCH, SHORT SIDE	EA	1
WATER SERVICE, SHORT SIDE	EA	1
WATER SERVICE, LONG SIDE	EA	4
HMA, 4E10 (495 #/SYD)	TON	438
HMA, 4E10 (220 #/SYD)	TON	12
HAND PATCHING, HMA, 4E10 (220 #/SYD)	TON	4
MACHINE GRADING, MODIFIED	STA	3.75

CONSTRUCTION NOTES

(C1) WATER SERVICE, LONG SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

(C2) WATER SERVICE, SHORT SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

(C3) REMOVE GATE VALVE BOX, INCLUDED IN PAY ITEM "MACHINE GRADING MODIFIED"

(C4) MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION OF WATER MAIN FROM ALL SEWERS

(C5) MAINTAIN 18" VERTICAL SEPARATION OF WATER MAIN FROM ALL SEWERS. LOWERING OF PROPOSED WATER MAIN REQUIRED TO MAINTAIN 18" VERTICAL SEPARATION FROM SEWERS SHALL BE INCLUDED IN PAY ITEM "WATER MAIN, DI, 8 INCH, TR DET G.

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. WATERMAIN AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH CITY OF TRAVERSE CITY TECHNICAL SPECIFICATIONS FOR WATERMAINS AND APPURTENANCES AND AWWA STANDARDS.
3. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION, ADDITIONAL LATERALS MAY ENCOUNTERED. FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO CONSTRUCTION.
4. CONNECT TO EXISTING SHALL INCLUDE UP TO 20 FEET OF REPLACEMENT PIPE AND ALL FITTINGS NECESSARY TO CONNECT TO EXISTING UTILITIES.

The City of Traverse City Engineering Department
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

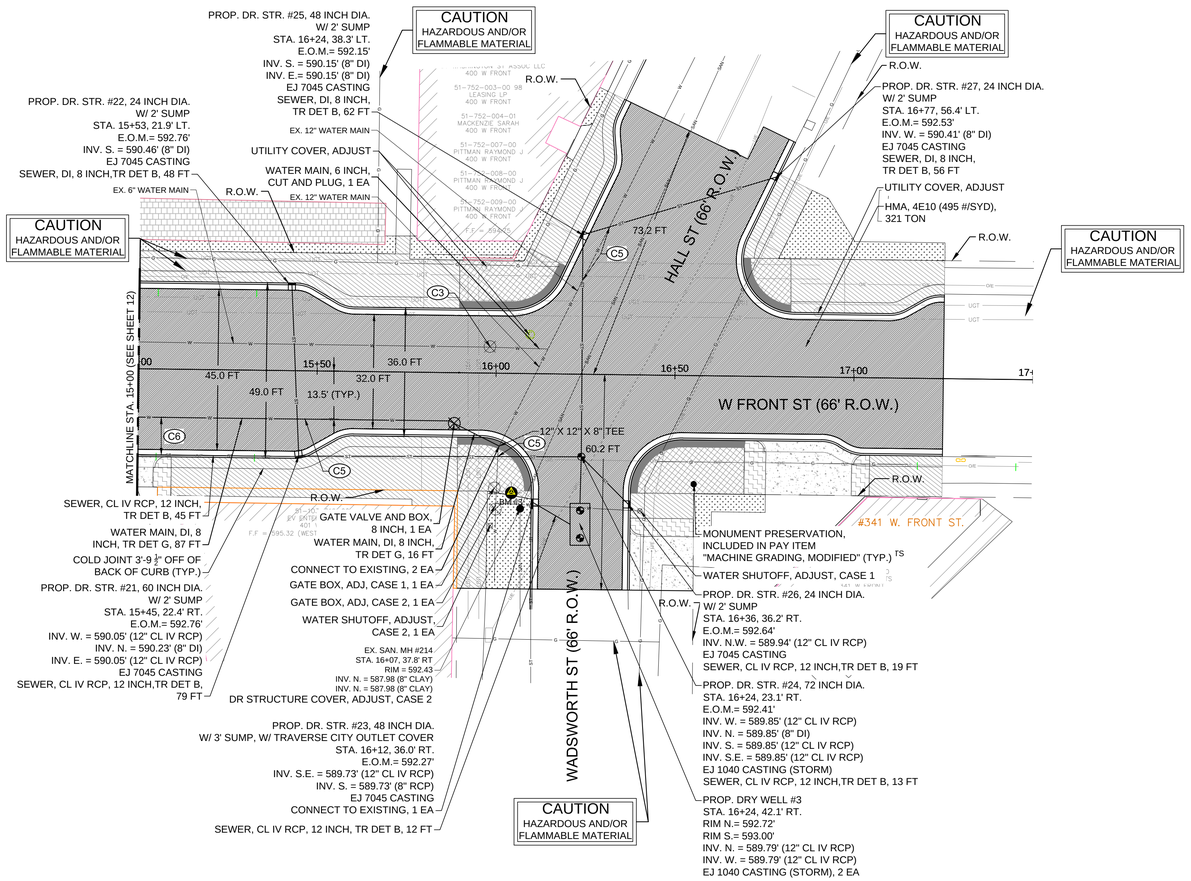
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PLAN AND PROFILE SHEET (STA. 11+25 TO STA. 15+00)

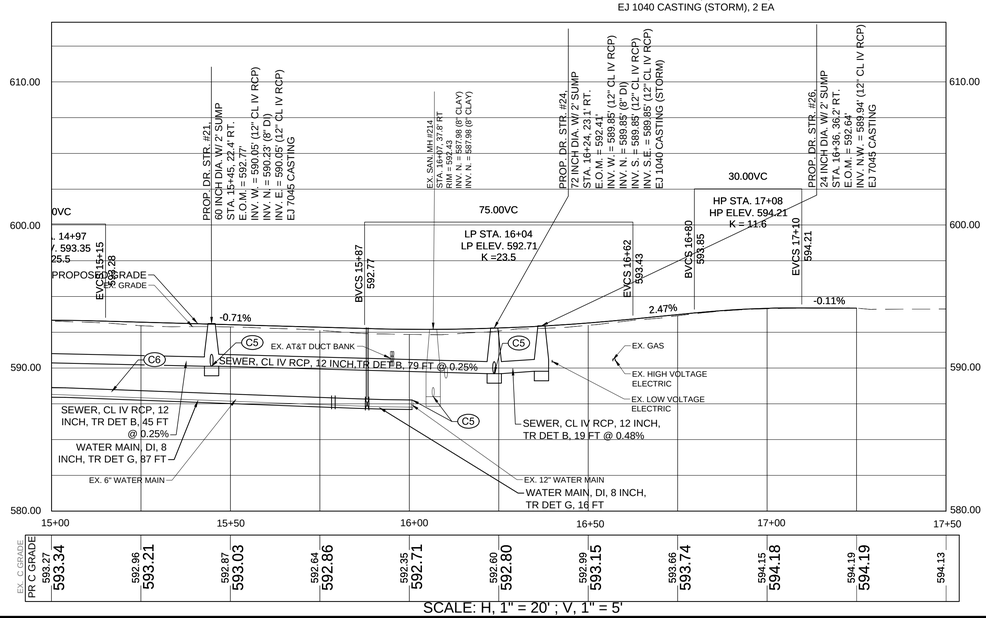
Revision/Issue	Date
BID SET	2-24-15

Date: 12-1-14
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 12 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Const-Sht12.dwg, 2/26/2015 2:25:12 PM, zcole

FRONT STREET (66' R.O.W.)





N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

BENCHMARK DATA

BENCHMARK #3
X IN FLANGE BOLT OF HYDRANT AT
S.W. COR. OF WADSWORTH AND FRONT
ELEV.= 594.57'

HATCH LEGEND

- PROPOSED LAWN AREA
- PROPOSED HMA
- PROPOSED SIDEWALK RAMP, ADA
- PROPOSED SIDEWALKS CONC., 4"
- PROPOSED SIDEWALK, CONC, 6 INCH
- PROPOSED DRIVEWAY NON REINFORCED CONC, 6 INCH
- CONC PAVT, DECORATIVE, REINFORCED, 13 INCH

ESTIMATED DRIVEWAY/WALK QUANTITIES

STATION & OFFSET	DRIVEWAY OPENING (FT)	DRIVEWAY, NON-REINFORCED, 6 INCH (SYD)	SIDEWALK RAMP, CONC, 6 INCH (SFT)
16+07, 24.1 R			279
16+11, 20.1 L			362
16+37, 50.5 R	15.5	31	
16+40, 23.9 R			431
16+73, 21.5 L			155
16+80, 17.8 R	24	40	

ESTIMATED QUANTITIES THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
AGGREGATE BASE, 8 INCH	SYD	1294
SEWER, CL IV RCP, 12 INCH, TR DET B	FT	168
SEWER, DI, 8 INCH, TR DET B	FT	166
DR. STRUCTURE, 24 INCH, EJ 7045 CASTING	EA	3
DR. STRUCTURE, 48 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	1
DR. STRUCTURE, 48 INCH, EJ 7045 CASTING, 3 FOOT SUMP	EA	1
DR. STRUCTURE, 60 INCH, EJ 7045 CASTING, 2 FOOT SUMP	EA	1
DR. STRUCTURE, 72 INCH, EJ 1040 CASTING (STORM)	EA	1
DRY WELL, EJ 1040 CASTING, 2 EA (STORM)	EA	1
DR STRUCTURE COVER, ADJUST, CASE 2	EA	1
STORM SEWER, CONNECT TO EXISTING	EA	1
UTILITY COVER, ADJUST	EA	3
CURB AND GUTTER, CONC, DET C4	FT	564
SIDEWALK, CONC, 4 INCH	SFT	4049
CONC., 6 INCH, NON-REINFORCED, SIDEWALK/ADA RAMPS, DRIVEWAYS	SFT	2174
DETECTABLE WARNING, CAST IN PLACE, REPLACEABLE, BRICK RED	FT	122
WATER MAIN, 6 INCH, CUT AND PLUG	EA	1
GATE BOX, ADJ, CASE 1	EA	1
GATE BOX, ADJ, CASE 2	EA	1
WATER SHUTOFF, ADJUST, CASE 1	EA	1
WATER SHUTOFF, ADJUST, CASE 2	EA	1
WATER MAIN, DI, 8 INCH, TR DET G	FT	103
GATE VALVE AND BOX, 8 INCH	EA	1
WATER MAIN, CONNECT TO EXISTING	EA	2
LOWER EXISTING WATERMAIN	EA	3
HMA, 4E10 (495 #/SYD)	TON	321
TRAVERSE CITY OUTLET COVER	EA	1
MACHINE GRADING, MODIFIED	STA	2.25

CONSTRUCTION NOTES

C1 WATER SERVICE, LONG SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C2 WATER SERVICE, SHORT SIDE. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL A NEW SERVICE TO A NEW CURB BOX. THIS ITEM SHALL INCLUDE THE SADDLE FOR TAPPING OF THE NEW MAIN, INSTALLING THE 1" OR 2" DIA. CORPORATION STOP, NEW 1" OR 2" DIA. TYPE K COPPER SERVICE LINE AND NEW CURB STOP & BOX & CONNECTION TO EXISTING SERVICE. NOTE: THESE SERVICES SHALL BE PUSH BORED AND HAND EXCAVATED IN PLACE A MIN. 5' DEEP, IF LOCATED WITHIN 15' OF EXISTING STREET TREE.

C3 REMOVE GATE VALVE BOX, INCLUDED IN PAY ITEM "MACHINE GRADING MODIFIED"

C4 MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION OF WATER MAIN FROM ALL SEWERS

C5 MAINTAIN 18" VERTICAL SEPARATION OF WATER MAIN FROM ALL SEWERS. LOWERING OF PROPOSED WATER MAIN REQUIRED TO MAINTAIN 18" VERTICAL SEPARATION FROM SEWERS SHALL BE INCLUDED IN PAY ITEM "WATER MAIN, DI, 8 INCH, TR DET G.

1. EXISTING PAVEMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE. DAMAGED PAVEMENTS, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT.
2. WATERMAIN AND APPURTENANCES SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH CITY OF TRAVERSE CITY TECHNICAL SPECIFICATIONS FOR WATERMAINS AND APPURTENANCES AND AWWA STANDARDS.
3. SANITARY SEWER LATERALS AND STORM SEWER LATERALS ARE SHOWN FOR INFORMATION ONLY AND REPRESENT THEIR APPROXIMATE LOCATION, ADDITIONAL LATERALS MAY ENCOUNTERED. FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO CONSTRUCTION.
4. CONNECT TO EXISTING SHALL INCLUDE UP TO 20 FEET OF REPLACEMENT PIPE AND ALL FITTINGS NECESSARY TO CONNECT TO EXISTING UTILITIES.

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

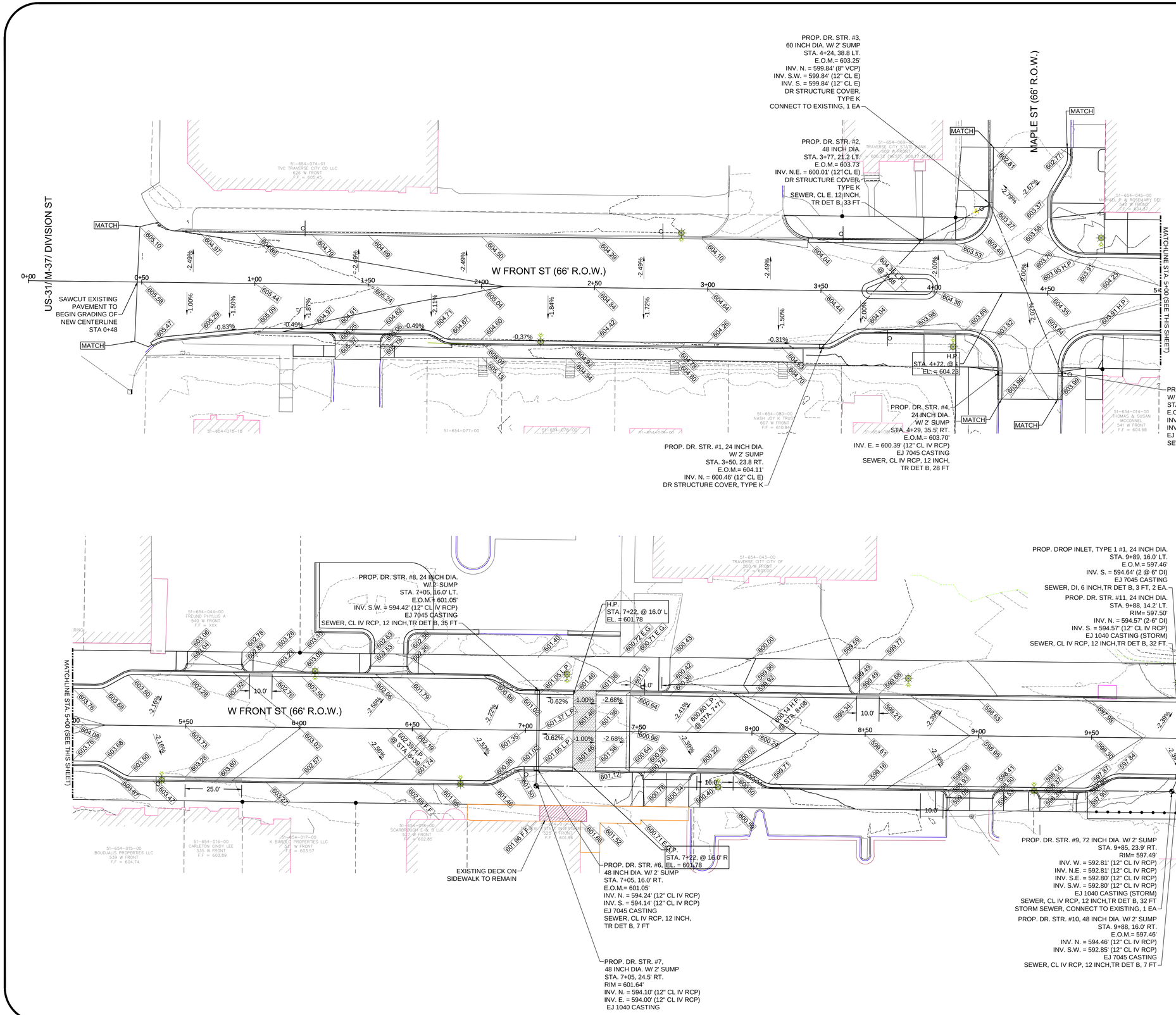
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PLAN AND PROFILE SHEET (STA. 15+00 TO P.O.E.)

Revision/Issue	Date
BID SET	2-24-15

Date: 12-1-14
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 13 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Const-Sht13.dwg, 2/26/2015 2:26:04 PM, zcole

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Grading - Sht 14.dwg, 2/26/2015 2:26:32 PM, zcole



N

SCALE: 1" = 20'

0 20' 40'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- CURB HEIGHT TRANSITION

The City of Traverse City
Engineering Department

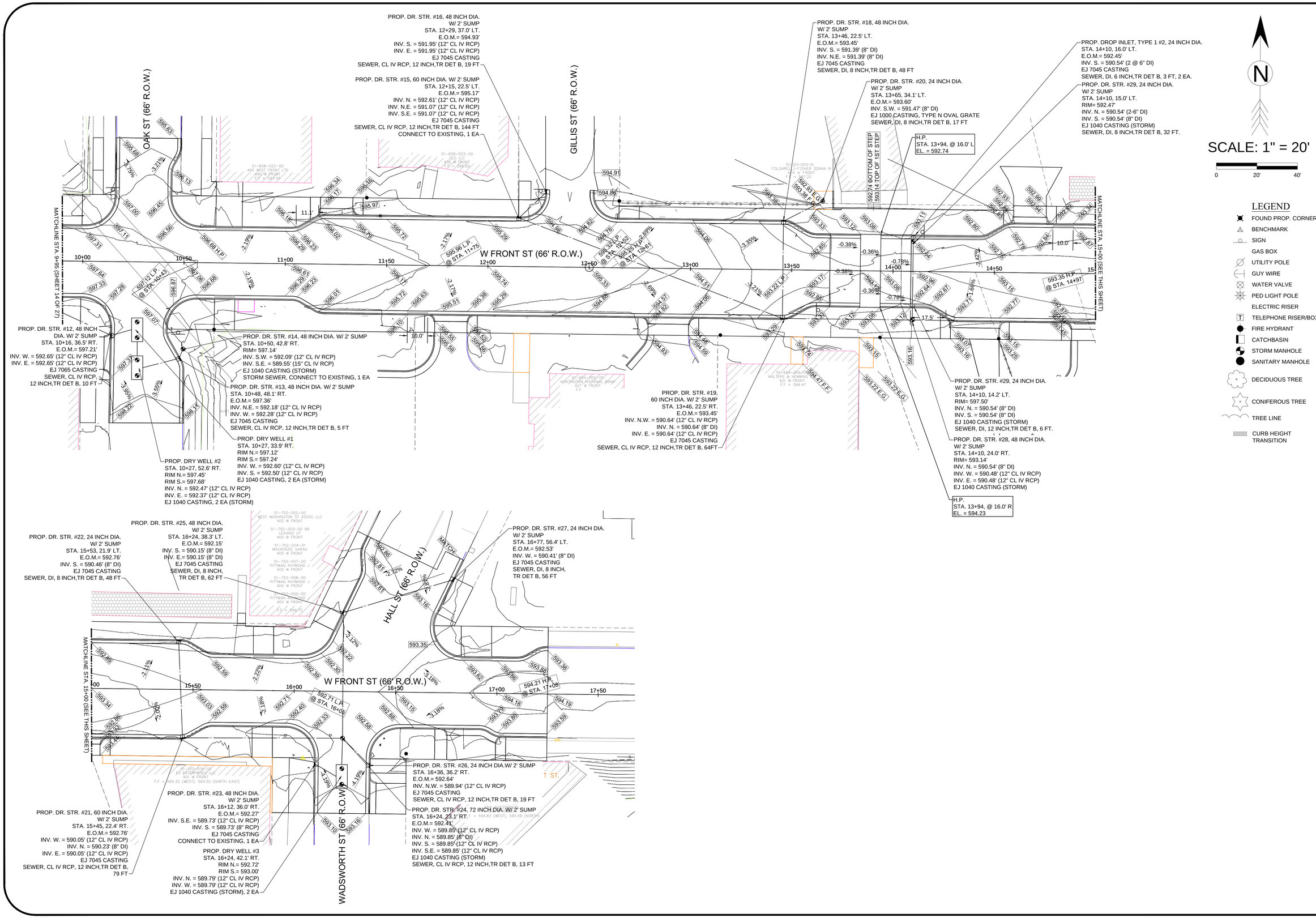
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
GRADING DETAIL SHEET

Revision/Issue	Date
BID SET	2-24-15

Date: 1-26-15
Project No.: 2015-01
Drawn by: ZRC
Scale: 1" = 20'
Sheet No.: 14 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Grading - Sht 15.dwg, 2/26/2015 2:26:57 PM, zcole



The City of Traverse City
Engineering Department

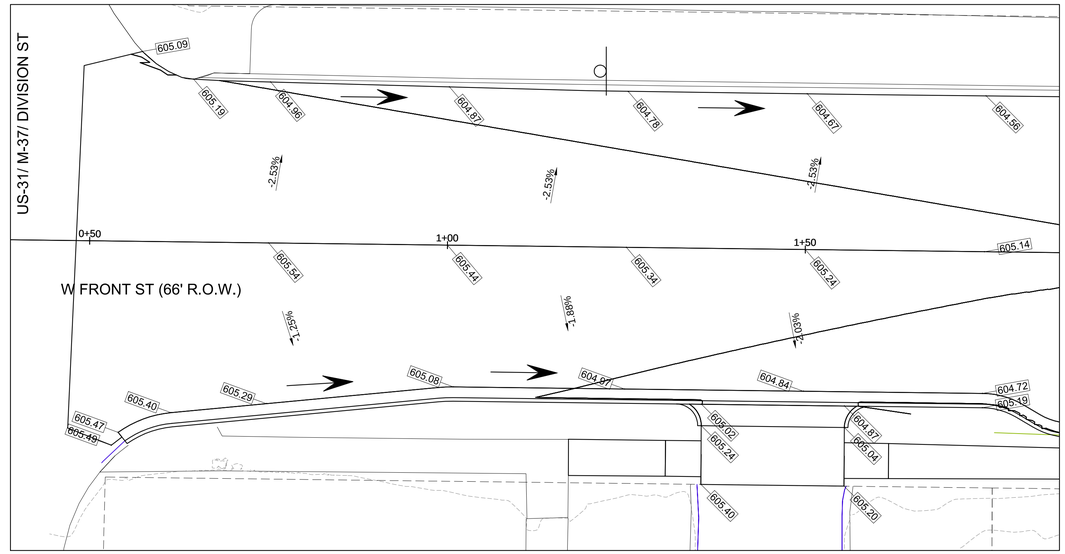
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

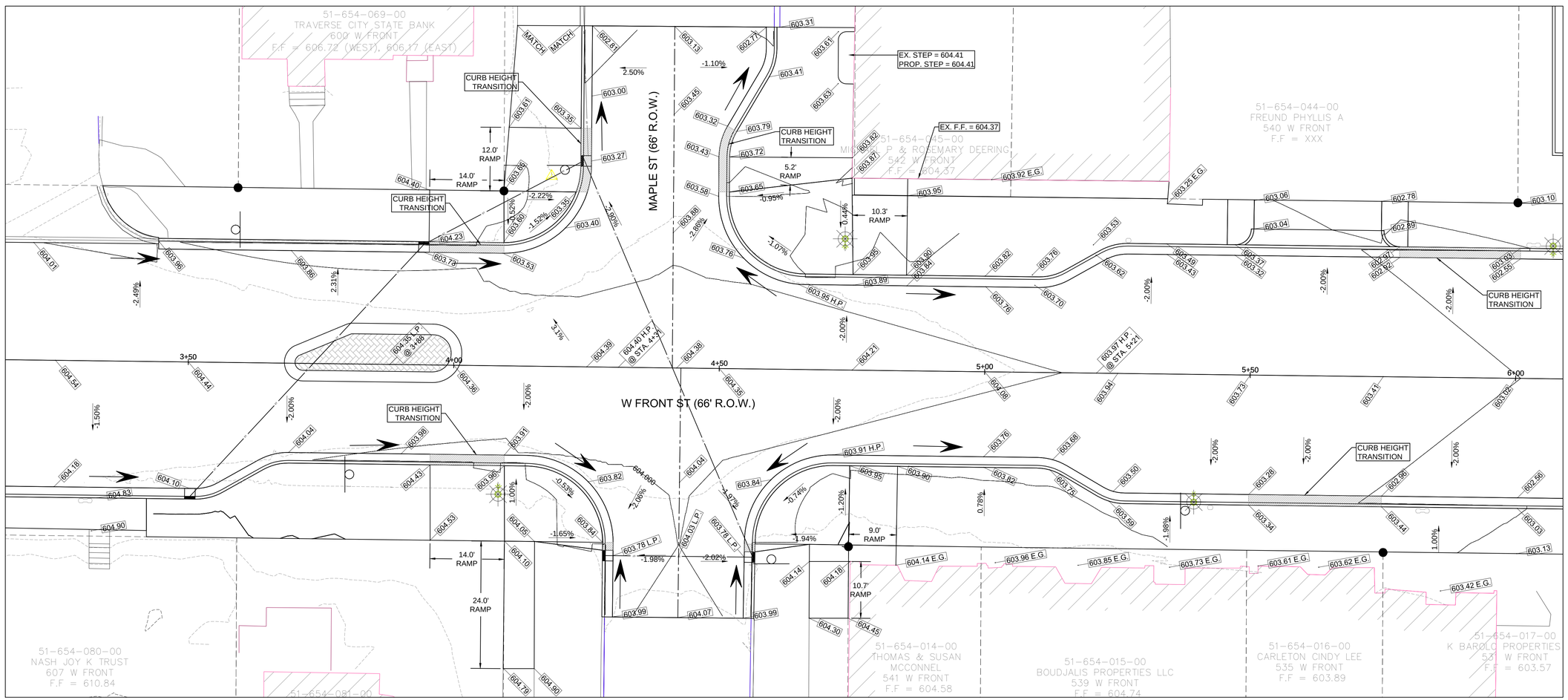
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
GRADING DETAIL SHEET

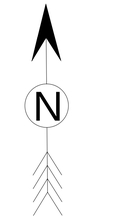
Revision/Issue	Date
BID SET	2-24-15

Date: 1-26-15
Project No.: 2015-01
Drawn by: ZRC
Scale: 1" = 20'
Sheet No.: 15 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Grading Intersections- Sht 16.dwg, 2/26/2015 2:27:24 PM, zcole







SCALE: 1" = 10'

0 10' 20'

LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
INTERSECTION GRADING DETAILS

Revision/Issue	Date
BID SET	2-24-15

Date: 1-26-15

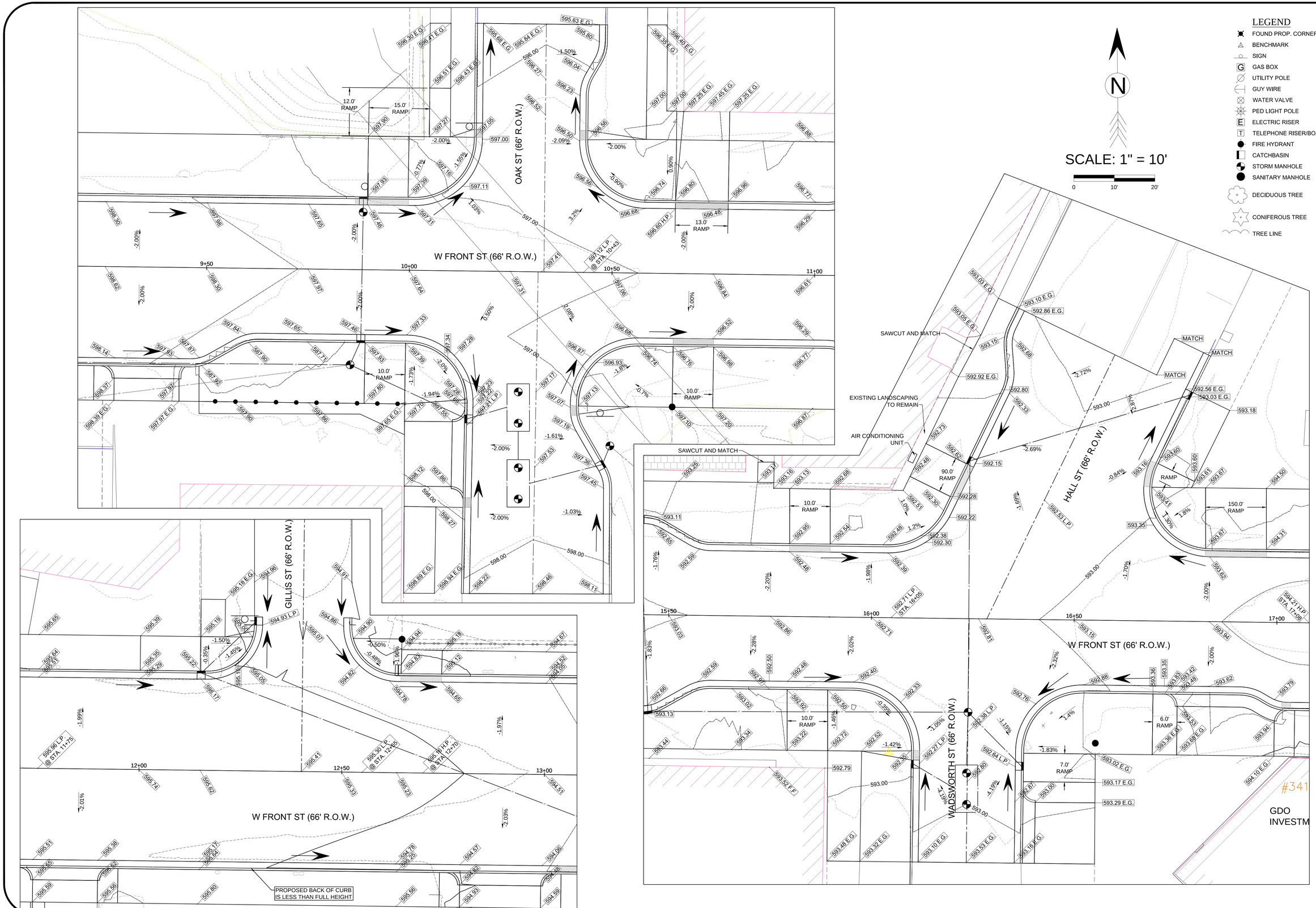
Project No.: 2015-01

Drawn by: ZRC

Scale: 1" = 10'

Sheet No.: 16 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Grading Intersections- Sht 17.dwg, 2/26/2015 2:27:51 PM, zcole



The City of Traverse City
Engineering Department

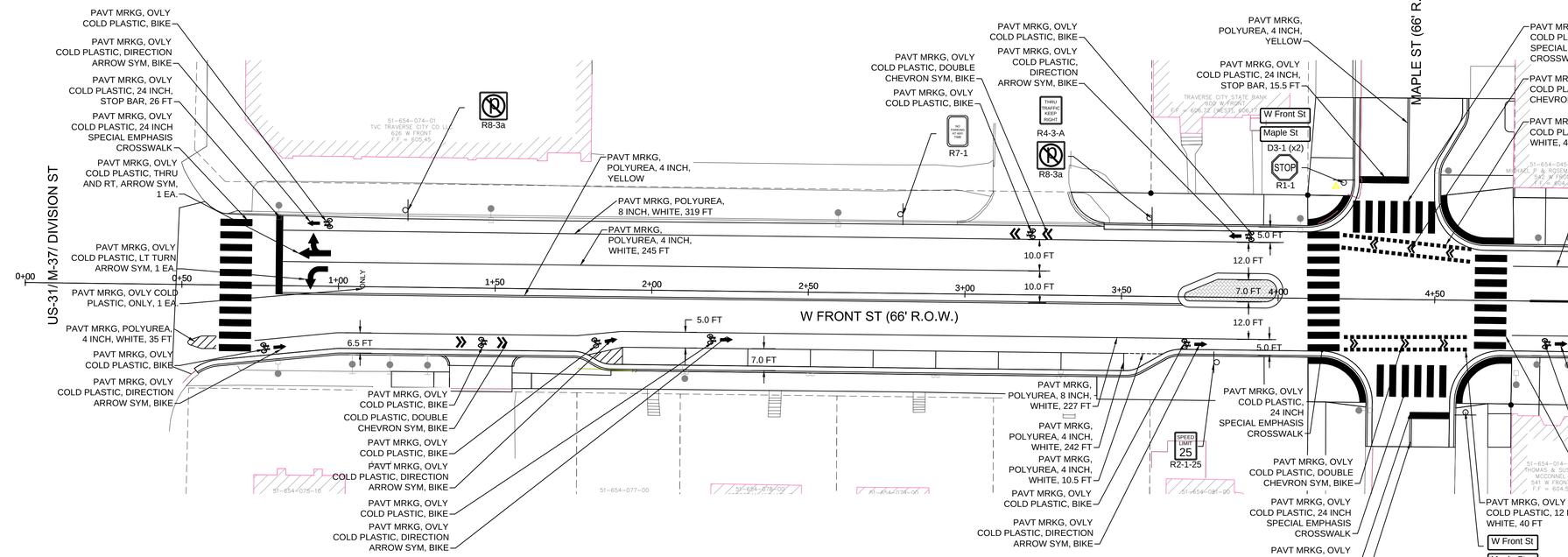
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

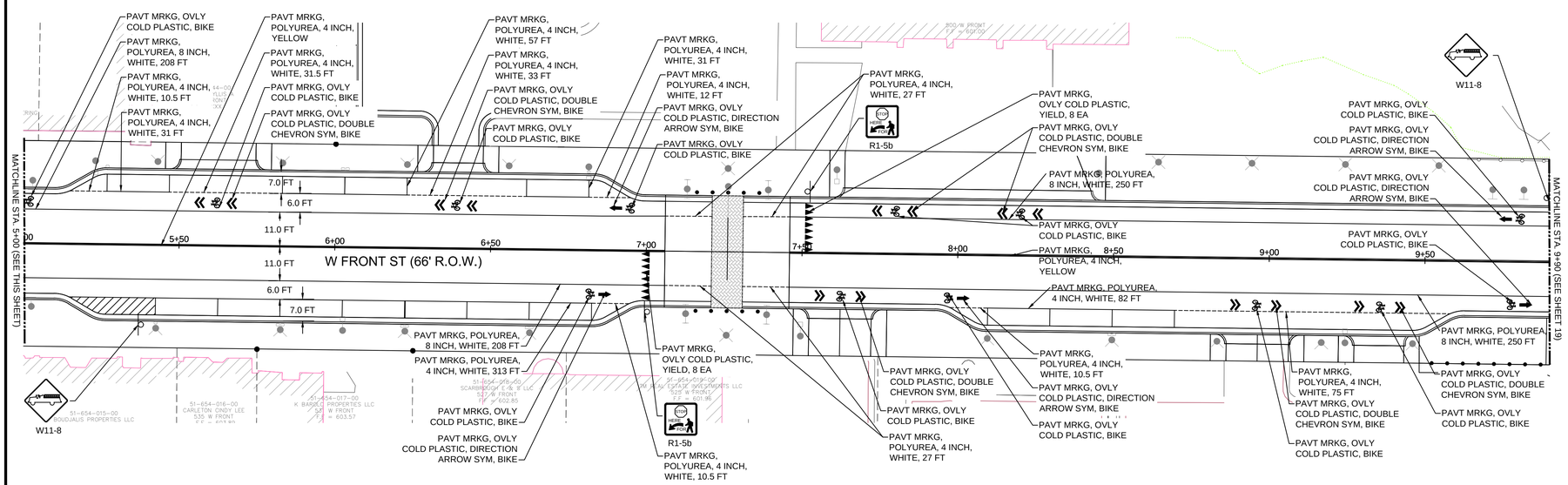
CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
INTERSECTION GRADING DETAILS

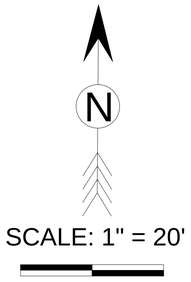
Revision/Issue	Date
BID SET	2-24-15

Date: 1-26-15
Project No.: 2015-01
Drawn by: ZRC
Scale: 1" = 10'
Sheet No.: 17 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Pavement Markings - 18.dwg, 2/26/2015 2:28:16 PM, zcole







LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- PARKING METER

NOTES:

1. ALL PERMANENT SIGNS SHALL HAVE HIGH INTENSITY SHEETING.
2. ALL SIGNS LOCATED IN CONCRETE SHALL BE SLEEVED WITH SCH 40 PVC PIPE

PROPOSED PARKING METERS:

LEFT:
1 SINGLE: 5+23 TO 5+43
1 DOUBLE: 5+83 TO 6+23
1 SINGLE: 6+62 TO 6+82

RIGHT:
4 DOUBLE: 1+91 TO 3+51
3 DOUBLE, 1 SINGLE: 5+42 TO 6+82
1 DOUBLE, 1 SINGLE: 8+10 TO 8+70

PROPOSED PARKING SPACES:

LEFT:
1 PERPENDICULAR SPACE 5+23 TO 5+43
2 PERPENDICULAR SPACES 5+83 TO 6+23
1 PERPENDICULAR SPACE 6+67 TO 6+87

RIGHT:
8 PERPENDICULAR SPACES 1+91 TO 3+51
7 PERPENDICULAR SPACES 5+36 TO 6+76
3 PERPENDICULAR SPACES 8+10 TO 8+70

QUANTITY DESCRIPTION THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
POST, STEEL, 3 LB (14' LENGTH)	FT	140
PARKING METER POST	EA	13
SIGN, TYPE IIIB	SFT	57
PAVT MRKG, POLYUREA, 4 INCH, WHITE	FT	1039
PAVT MRKG, POLYUREA, 8 INCH, WHITE	FT	1512
PAVT MRKG, POLYUREA, 4 INCH, YELLOW	FT	1606
PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, SPECIAL EMPHASIS CROSSWALK	FT	420
PAVT. MRKG, OVERLAY COLD PLASTIC, 24 INCH, STOPBAR	FT	28
PAVT MRKG, OVLY COLD PLASTIC, ONLY	EA	1
PAVT MRKG, OVLY COLD PLASTIC, LT TURN ARROW SYM	EA	1
PAVT MRKG, OVLY COLD PLASTIC, THRU AND RT, ARROW SYM	EA	1
PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, WHITE	FT	82
PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, BIKE	EA	13
PAVT MRKG, OVLY COLD PLASTIC, BIKE	EA	21
PAVT MRKG, OVLY COLD PLASTIC, DOUBLE CHEVRON SYM, BIKE	EA	24
PAVT MRKG, OVLY COLD PLASTIC, YIELD	EA	16

SYMBOL	LABEL	DIMENSION	AREA (SFT)	QUANTITY (EACH)	QUANTITY (SFT)
STOP	R1-1	30"x30"	6.25	2	12.5
	R8-3	12"x12"	1.0	2	2
THRU TRAFFIC KEEP RIGHT	R4-3-A	18"x24"	3	1	3
NO PARKING AT ANY TIME	R7-1-D	12"x18"	1.5	1	1.5
SPEED LIMIT 25	R2-1-25	30"x24"	5	1	5
	W11-8	30"x30"	6.25	2	12.5
W Front St	D3-1	30"x9"	1.875	4	7.5
STOP HERE FOR PEDS	R1-5b	30"x30"	6.25	2	12.5
				TOTAL	56.5

CITY OF TRAVERSE MICHIGAN Engineering

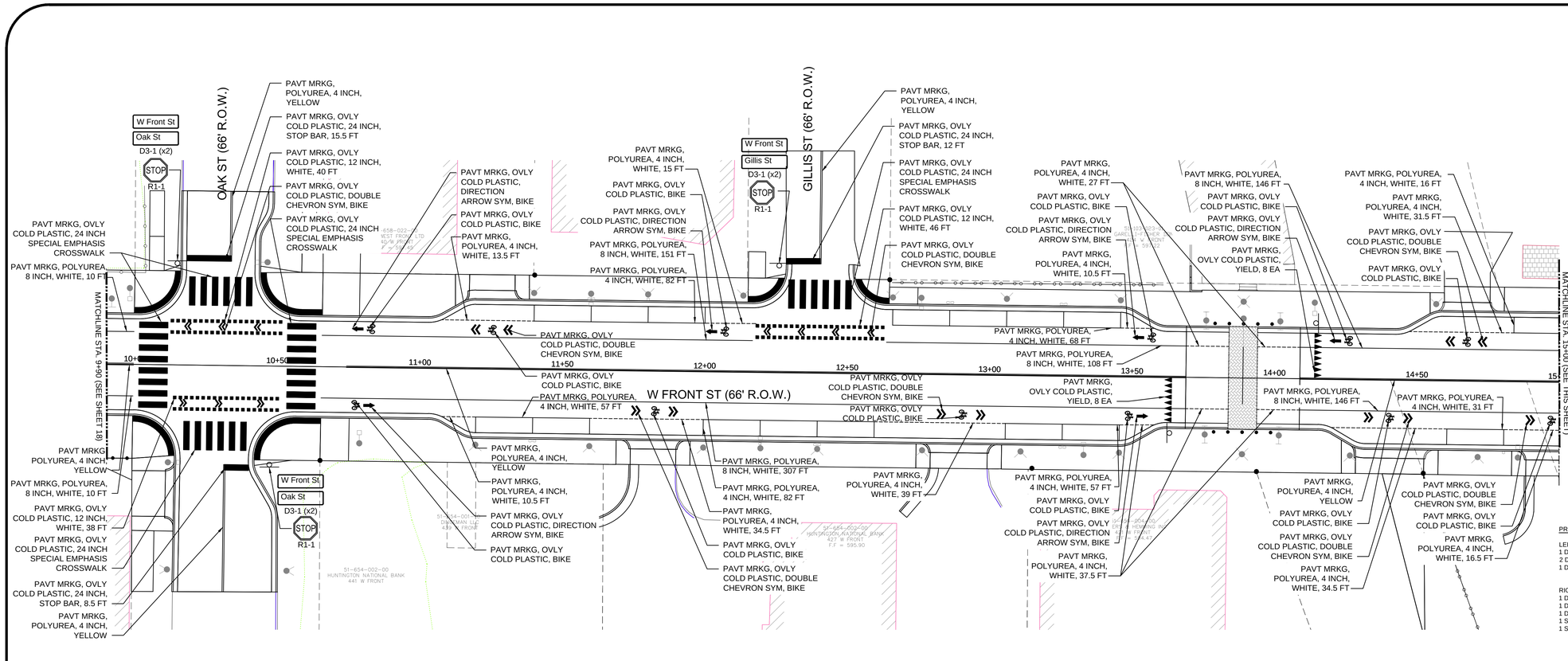
The City of Traverse City
Engineering Department

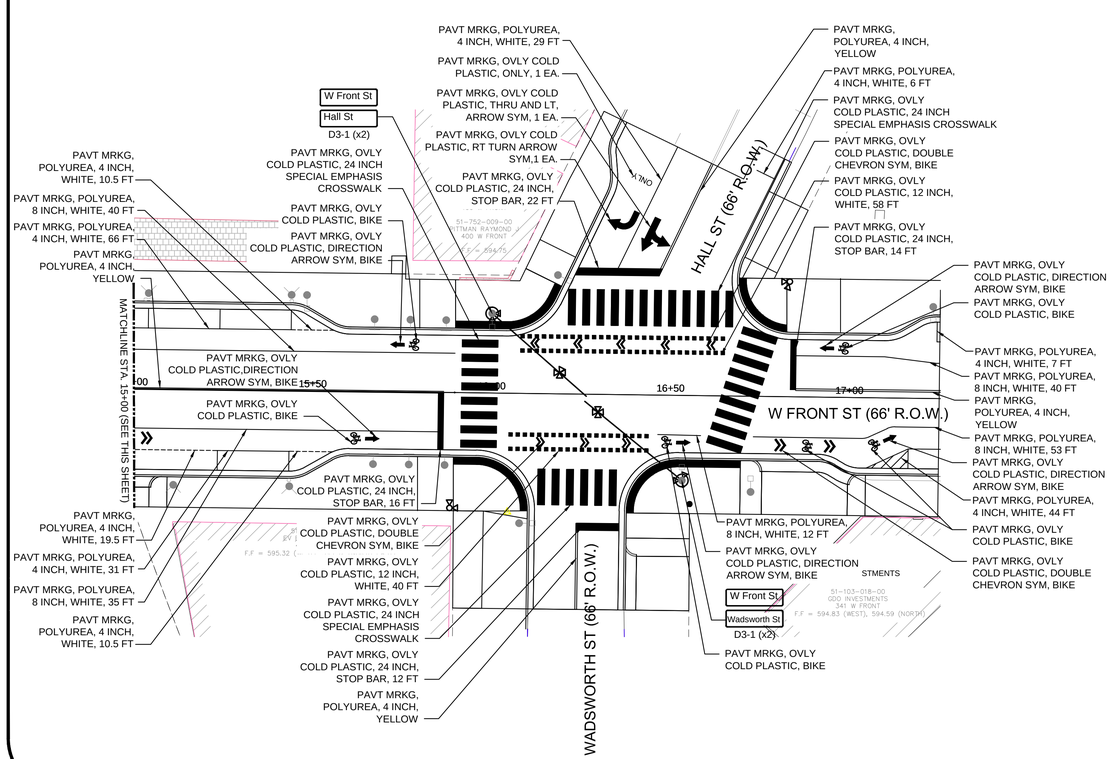
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

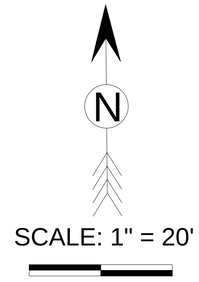
CITY OF TRAVERSE
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PAVEMENT MARKINGS SHEET (P.O.B. TO STA. 9+90)

Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 18 OF 27







LEGEND

- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- PARKING METER

NOTES:

1. ALL PERMANENT SIGNS SHALL HAVE HIGH INTENSITY SHEETING.
2. ALL SIGNS LOCATED IN CONCRETE SHALL BE SLEEVED WITH SCH 40 PVC PIPE

PROPOSED PARKING METERS:

LEFT:
1 DOUBLE, 1 SINGLE: 11+55 TO 12+05
2 DOUBLE: 12+68 TO 13+48
1 DOUBLE, 1 SINGLE: 14+89 TO 15+49

RIGHT:
1 DOUBLE: 11+20 TO 11+60
1 DOUBLE, 1 SINGLE: 12+05 TO 12+65
1 DOUBLE: 13+08 TO 13+48
1 SINGLE: 14+60 TO 14+80
1 SINGLE: 15+21 TO 15+41

PROPOSED PARKING SPACES:

LEFT:
3 PERPENDICULAR SPACES 11+55 TO 12+05
4 PERPENDICULAR SPACES 12+68 TO 13+48
3 PERPENDICULAR SPACES 14+89 TO 15+49
1 PARTIAL PERPENDICULAR SPACE 17+24 TO P.O.E.

RIGHT:
2 PERPENDICULAR SPACES 11+20 TO 11+60
3 PERPENDICULAR SPACES 12+05 TO 12+65
2 PERPENDICULAR SPACES 13+08 TO 13+48
1 PERPENDICULAR SPACE 14+60 TO 14+80
1 PERPENDICULAR SPACE 15+21 TO 15+41
1 PARTIAL PERPENDICULAR SPACE 17+16 TO P.O.E.

QUANTITY DESCRIPTION THIS SHEET

ITEM DESCRIPTION	UNIT	QUANTITY
POST, STEEL, 3 LB (14' LENGTH)	FT	70
SIGN, TYPE IIIB	SFT	50
PARKING METER POST	EA	12
PAVT MRKG, POLYUREA, 4 INCH, WHITE	FT	858
PAVT MRKG, POLYUREA, 8 INCH, WHITE	FT	1058
PAVT MRKG, POLYUREA, 4 INCH, YELLOW	FT	1360
PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, SPECIAL EMPHASIS CROSSWALK	FT	690
PAVT. MRKG, OVERLAY COLD PLASTIC, 24 INCH, STOPBAR	FT	102
PAVT MRKG, OVLY COLD PLASTIC, ONLY	EA	1
PAVT MRKG, OVLY COLD PLASTIC, RT TURN ARROW SYM	EA	1
PAVT MRKG, OVLY COLD PLASTIC, THRU AND LT, ARROW SYM	EA	1
PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, WHITE	FT	222
PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, BIKE	EA	11
PAVT MRKG, OVLY COLD PLASTIC, BIKE	EA	18
PAVT MRKG, OVLY COLD PLASTIC, DOUBLE CHEVRON SYM, BIKE	EA	32
PAVT MRKG, OVLY COLD PLASTIC, YIELD	EA	16

SYMBOL	LABEL	DIMENSION	AREA (SFT)	QUANTITY (EACH)	QUANTITY (SFT)
STOP	R1-1	30"x30"	6.25	3	18.75
W Front St	D3-1	30"x9"	1.875	10	18.75
STOP HERE FOR	R1-5b	30"x30"	6.25	2	12.5
				TOTAL	50.0

The City of Traverse City
Engineering Department

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
PAVEMENT MARKINGS SHEET (STA. 9+90 TO P.O.E.)

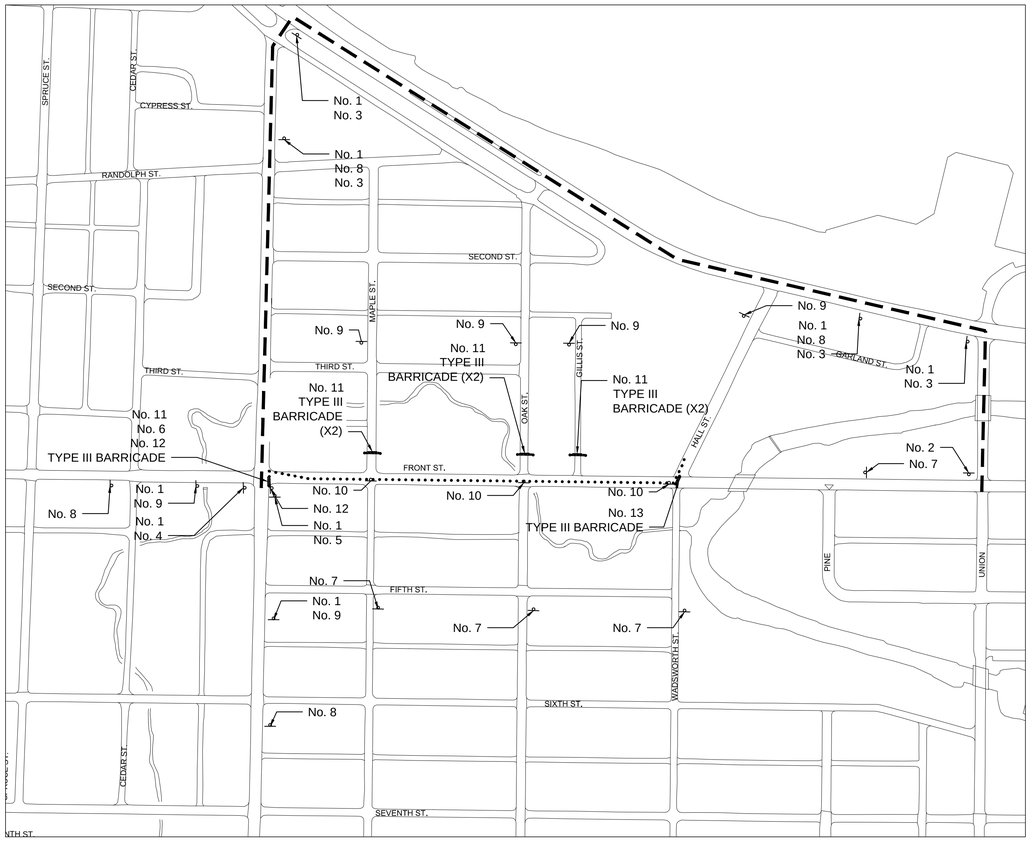
Revision/Issue	Date
BID SET	2/24/15

Date: 12-1-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 20'
Sheet No.: 19 OF 27

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Pavement Markings - 19.dwg, 2/26/2015 2:28:40 PM, zcole

K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Traf-Maint-Plan-Sht23.dwg, 2/26/2015 2:28:54 PM, zcole

STAGE 3
PROPOSED TRAFFIC MAINTENANCE PLAN



STAGE CONSTRUCTION

THE TRAFFIC CONTROL REQUIRED BY THIS SPECIAL PROVISION FOR WORK ON WEST FRONT STREET AND ADJACENT ROADWAYS IS BASED ON THE SUGGESTED SEQUENCE OF OPERATIONS CONTAINED IN THE STAGING PLANS. AN ALTERNATE TRAFFIC CONTROL PLAN MAY BE USED BY THE CONTRACTOR, SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER.

FOLLOWING IS A BRIEF DESCRIPTION OF TRAFFIC CONTROL REQUIRED DURING EACH CONSTRUCTION STAGE:

STAGE 1

- WEST FRONT STREET FROM DIVISION STREET TO HALL STREET ALONG THE NORTH SIDE OF WEST FRONT STREET.
- SAWCUT AND REMOVE A SUFFICIENT AMOUNT OF PAVEMENT, CURB AND SIDEWALK TO INSTALL LONGSIDE WATER SERVICE LEADS, FIRE SUPPRESSION LEAD AT STA. 12+50, WATER MAIN AT OAK ST., WATER MAIN AT DIVISION ST., SANITARY SEWER AND STRUCTURE AT GILLIS ST., DRAINAGE STRUCTURES (W/O CASTINGS) AND STORM SEWER IN NORTH HALF OF W. FRONT ST. BACKFILL AND HANDPATCH STREET, CURB AND GUTTER WITH HMA.
- MAINTAIN EASTBOUND AND WESTBOUND TRAFFIC IN SOUTH HALF OF W. FRONT ST. ON EXISTING PAVEMENTS PER TRAFFIC MAINTENANCE PLANS. PROVIDE LANE SHIFTS AS NEEDED TO FACILITATE THE WORK. PROVIDE LANE SHIFTS AT DIVISION ST. FOR PROPER TRAFFIC SIGNAL ALIGNMENTS.
- TRAFFIC SHALL BE MAINTAINED TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
- SIDEWALK TRAFFIC CONTROL SHALL BE PROVIDED WHENEVER CLOSING OR DETOURING SIDEWALK TRAFFIC AROUND WORK AREAS. TEMPORARY WOOD SIDEWALK AND RAMPS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.

STAGE 2

- WEST FRONT STREET FROM DIVISION STREET TO HALL STREET ALONG THE SOUTH SIDE OF WEST FRONT STREET.
- ALL REMOVALS, CONSTRUCTION OF WATER MAIN, SANITARY SEWER AND STRUCTURE AT GILLIS ST., DRAINAGE STRUCTURES, STORM SEWER, DRYWELLS, CONDUITS, NEW CURB AND GUTTER, SIDEWALKS, CROSSWALKS AND LEVELING COURSE ASPHALT.
- MAINTAIN EASTBOUND AND WESTBOUND TRAFFIC IN NORTH HALF OF W. FRONT ST. ON EXISTING PAVEMENTS PER TRAFFIC MAINTENANCE PLANS. PROVIDE LANE SHIFTS AS NEEDED TO FACILITATE THE WORK. PROVIDE LANE SHIFTS AT DIVISION ST. FOR PROPER TRAFFIC SIGNAL ALIGNMENTS.
- TRAFFIC SHALL BE MAINTAINED TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
- SIDEWALK TRAFFIC CONTROL SHALL BE PROVIDED WHENEVER CLOSING OR DETOURING SIDEWALK TRAFFIC AROUND WORK AREAS. TEMPORARY WOOD SIDEWALK AND RAMPS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.

STAGE 3 (SHOWN ABOVE)

- WEST FRONT STREET FROM DIVISION STREET TO HALL STREET ALONG THE NORTH SIDE OF WEST FRONT STREET.
- ALL REMOVALS, CONSTRUCTION OF DRAINAGE STRUCTURE CASTINGS, TRANSFER OF WATER SERVICES, CONDUITS, NEW CURB AND GUTTER, SIDEWALK, CROSSWALKS AND LEVELING COURSE ASPHALT.
- STREET CLOSURE FOR EASTBOUND WEST FRONT STREET TRAFFIC WITH DETOUR ROUTING VIA DIVISION STREET, US-31 M37, UNION STREET PER TRAFFIC MAINTENANCE PLANS.
- MAINTAIN WESTBOUND WEST FRONT STREET TRAFFIC WITH PART WIDTH CONSTRUCTION. PROVIDE LANE SHIFTS AS NEEDED TO FACILITATE THE WORK. PROVIDE LANE SHIFT AT DIVISION ST. FOR PROPER TRAFFIC SIGNAL ALIGNMENTS.
- TRAFFIC SHALL BE MAINTAINED TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
- SIDEWALK TRAFFIC CONTROL SHALL BE PROVIDED WHENEVER CLOSING OR DETOURING SIDEWALK TRAFFIC AROUND WORK AREAS. TEMPORARY WOOD SIDEWALK AND RAMPS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.

STAGE 4

- WEST FRONT STREET FROM DIVISION STREET TO HALL STREET.
- ADJUST CASTINGS AND CONSTRUCT WEARING ASPHALT COURSE. THE PREFERRED TIMING IS EARLY TO MID-WEEK CONSTRUCTION.
- STREET CLOSURE FOR EASTBOUND WEST FRONT STREET TRAFFIC WITH DETOUR ROUTING VIA DIVISION STREET, US-31 M37, UNION STREET PER TRAFFIC MAINTENANCE PLANS.
- STREET CLOSURE FOR WESTBOUND WEST FRONT STREET TRAFFIC WITH DETOUR ROUTING VIA UNION STREET, US-31 M37, DIVISION STREET PER TRAFFIC MAINTENANCE PLANS.
- SIDEWALK TRAFFIC CONTROL SHALL BE PROVIDED WHENEVER CLOSING OR DETOURING SIDEWALK TRAFFIC AROUND WORK AREAS. TEMPORARY WOOD SIDEWALK AND RAMPS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.

LEGEND

- DETOUR ROUTE
- BARRICADE, TYP III, LIGHTED
- PLASTIC DRUM, HIGH INTENSITY
- SIGN, TYPE B, TEMP INTENSITY

N

SCALE: 1" = 20'

0 20' 40'

SIGN, TYPE B, TEMP. KEY

No.	SYMBOL	LABEL	DIMENSION (ft)	AREA (sft)
1	WEST FRONT	D3-1	2.5x0.5	1.25
2	DETOUR ENDS	M4-8a	2x1.5	3
3	DETOUR →	M4-9R	2.5x2	5
4	DETOUR ←	M4-9L	2.5x2	5
5	DETOUR ↑	M4-9S	2.5x2	5
6	DETOUR	M4-10L	4X1.5	6
7	ROAD WORK AHEAD	W20-1	4x4	16
8	DETOUR AHEAD	W20-2	4x4	16
9	ROAD CLOSED AHEAD	W20-3	4x4	16
10	ONE WAY	R-61L	1.5x4.5	6.75
11	ROAD CLOSED	R11-2	4 X 2.5	10
12	DO NOT ENTER	R5-1a	4 X 4	16
13	ONE WAY WESTBOUND TRAFFIC USE LEFT LANE	SPECIAL 3	4 X 2.5	10

QUANTITY DESCRIPTION THIS SHEET		
ITEM DESCRIPTION	UNIT	QUANTITY
HAND PATCHING, HMA, 13A (165 #/SYD)	TON	139
SIGN, PORTABLE, CHANGEABLE MESSAGE, FURN	EA	2
SIGN, PORTABLE, CHANGEABLE MESSAGE, OPER	EA	2

MAINTAINING TRAFFIC NOTES:

1. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ALL NECESSARY BARRICADES, SIGNS AND OTHER NECESSARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE 2011 MMUTCD AND THE 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. A MINIMUM OF ONE (1) LANE OF TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON WEST FRONT ST. TO ALLOW FOR ACCESS TO BUSINESSES AND EMERGENCY VEHICLES, EXCEPT FOR STAGE 4 CONSTRUCTION. SEE DETAILS ON SHEET 2. THE INTERSECTIONS SHALL BE KEPT OPEN TO TRAFFIC EXCEPT FOR WHEN WORK IS ACTUALLY OCCURRING WITHIN THE APPROACH PAVEMENT SPRING POINTS.
3. ALL WARNING SIGNS SHALL BE TYPE B, TEMPORARY. FLEXIBLE ROLL UP SIGNS WILL NOT BE ALLOWED.
4. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER A MINIMUM OF 72 BUSINESS HOURS PRIOR TO THE IMPLEMENTATION OF ANY DETOURS, ROAD CLOSURES, OR LANE CLOSURES AND MAJOR TRAFFIC SHIFTS.
5. IT IS ANTICIPATED THAT CONSTRUCTION STAGING WILL COMMENCE AS OUTLINED IN THE SPECIAL PROVISION FOR MAINTAINING TRAFFIC. CHANGES TO THE CONSTRUCTION STAGING SHALL BE APPROVED BY THE ENGINEER.
6. MAINTAIN PEDESTRIAN FACILITIES USING EXISTING SIDEWALKS, PROPOSED SIDEWALKS OR TEMPORARY WOOD SIDEWALKS AS DIRECTED BY ENGINEER.
7. ALL SIGNS SHALL BE PLACED IN LOCATIONS SUCH THAT A MINIMUM 3 FT. CLEAR PATH ON ALL SIDEWALKS IS MAINTAINED.
8. WORK HOURS FOR LANE CLOSURE SHALL BE IN ACCORDANCE WITH THE MDOT PERMIT FOR THE PROJECT. OVERNIGHT LANE CLOSURES ARE PROHIBITED UNLESS APPROVED BY THE ENGINEER.
9. NO WORK SHALL BE PERFORMED OR ALLOWED DURING THE MEMORIAL DAY WEEKEND (FRIDAY MAY 22ND THROUGH MONDAY MAY 25TH) UNLESS APPROVED BY THE ENGINEER.
10. SEE THE PROPOSAL FOR MDOT TYPICALS M0020a, M0070a, M0080a, M0110a, M0730a, M0880a AND STANDARD PLANS WZD-100-A AND WZD-125-E.

The City of Traverse City
Engineering Department

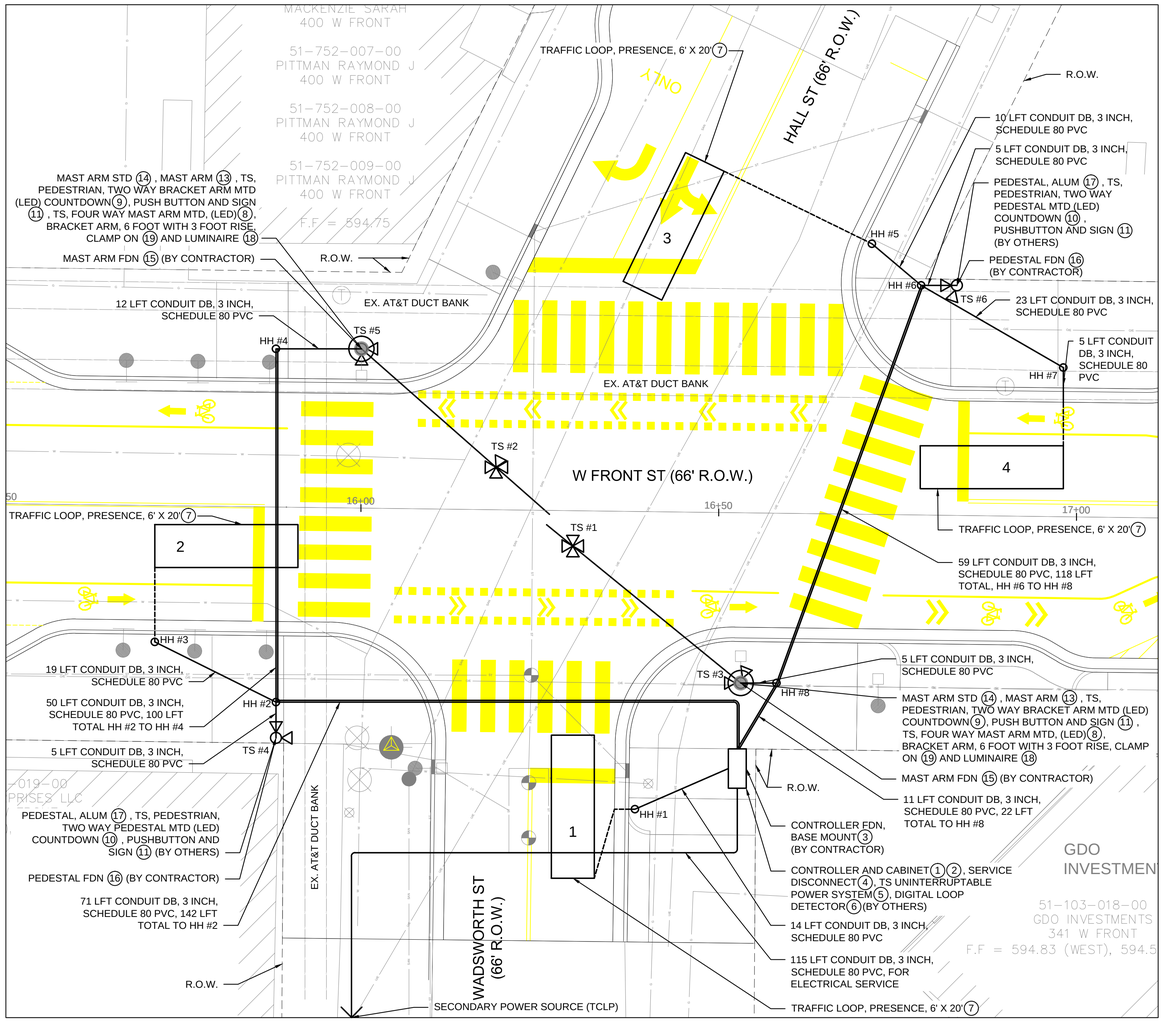
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE CITY
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
TRAFFIC MAINTENANCE PLAN

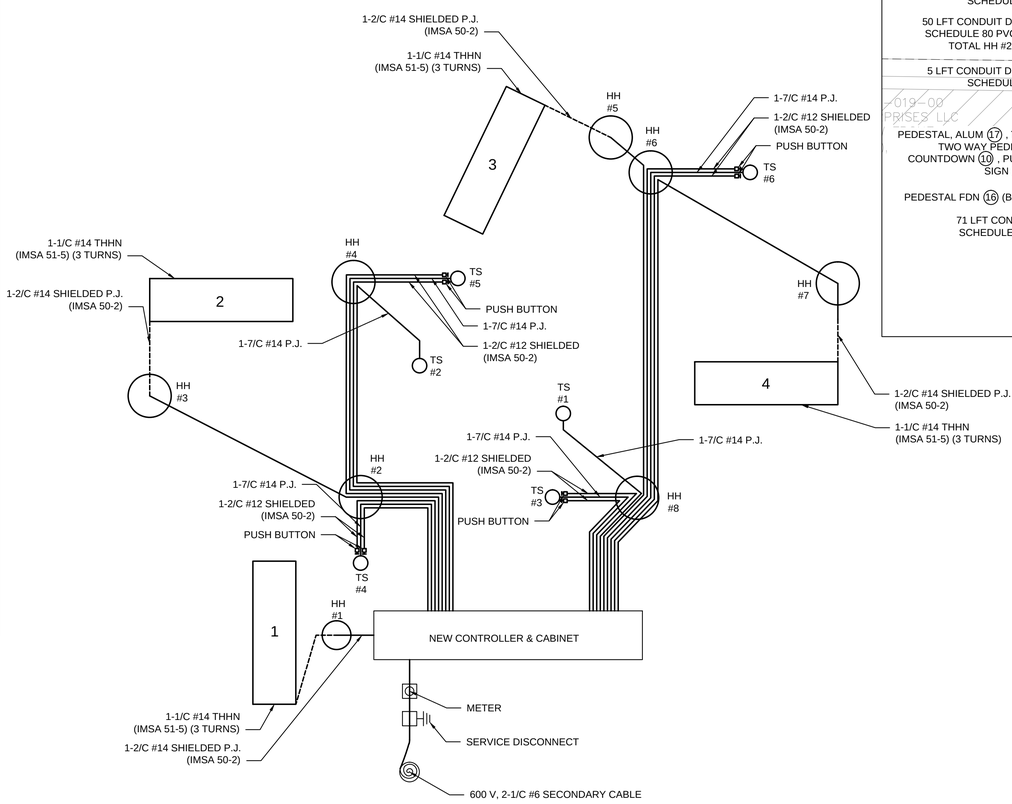
Revision/Issue	Date
BID SET	2/24/15

Date: 1-21-15
Project No.: 2015-01
Drawn by: JLC
Scale: N.T.S.
Sheet No.: 23 OF 27

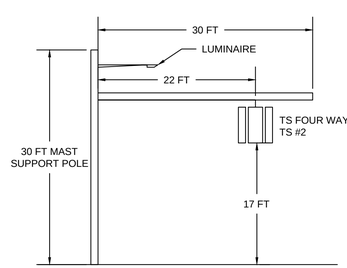
K:\CITYENG\Projects\2015\2015 Paving and Resurfacing Projects\2015 West Front Street\Construction Drawings\Traffic Signal Details- Sht 24.dwg, 2/26/2015 2:29:17 PM, zcole



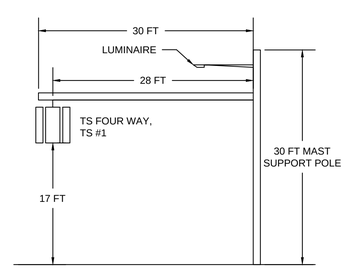
PROPOSED TRAFFIC SIGNAL PLAN
SCALE: 1" = 10'



PROPOSED WIRING DIAGRAM
N.T.S.



MAST ARM IN NW QUADRANT
N.T.S.



MAST ARM IN SE QUADRANT
N.T.S.

TRAFFIC SIGNAL NOTES

1. CONTRACTOR SHALL CONSTRUCT MAST POLE FOUNDATIONS, PEDESTAL FOUNDATIONS, HANDHOLES, CONDUIT, AND CONTROLLER FOUNDATION AS PART OF THE CONTRACT. CONTRACTOR SHALL COORDINATE ADDITIONAL TRAFFIC SIGNAL INSTALLATION WORK WITH TRAVERSE CITY LIGHT AND POWER, WHO WILL INSTALL CONTROL CABINET, POSTS, WIRING, TRAFFIC SIGNALS, AND RELATED ITEMS OF WORK.

LIST OF MATERIAL

NO.	ITEM	UNIT	QTY.
1	CONTROLLER AND CABINET, SOLID STATE ACTUATED	EA	1
2	CONTROLLER AND CABINET, SOLID STATE, ACTUATED, DELIVERED	EA	1
3	CONTROLLER FDN, BASE MOUNT (BY CONTRACTOR)	EA	1
4	SERV DISCONNECT	EA	1
5	TS, UNINTERRUPTIBLE POWER SYSTEM	EA	1
6	DIGITAL LOOP DETECTOR	EA	4
7	TRAF LOOP, PRESENCE, 6' X 20'	EA	4
8	TS, FOUR WAY MAST ARM MTD, (LED)	EA	2
9	TS, PEDESTRIAN, TWO WAY BRACKET ARM MTD, (LED) COUNTDOWN	EA	2
10	TS, PEDESTRIAN, TWO WAY PEDESTAL MTD, (LED) COUNTDOWN	EA	2
11	PUSHBUTTON AND SIGN	EA	4
12	HH, POLYMER CONC, 13" X 24" X 18" (BY CONTRACTOR)	EA	8
13	MAST ARM	EA	2
14	MAST ARM STD	EA	2
15	MAST ARM FDN (BY CONTRACTOR)	EA	2
16	PEDESTAL, FDN (BY CONTRACTOR)	EA	2
17	PEDESTAL, ALUM	EA	2
18	LUMINAIRE	EA	2
19	BRACKET ARM, 6 FOOT, WITH 3 FOOT RISE, CLAMP ON	EA	2
20	CONDUIT, DB, 1, 3 INCH, SCHEDULE 80 PVC (BY CONTRACTOR)	LFT	404

N

SCALE: 1" = 10'
0 10' 20'

LEGEND
- FOUND PROP. CORNER
- BENCHMARK
- SIGN
- GAS BOX
- UTILITY POLE
- GUY WIRE
- WATER VALVE
- PED LIGHT POLE
- ELECTRIC RISER
- TELEPHONE RISER/BOX
- FIRE HYDRANT
- CATCHBASIN
- STORM MANHOLE
- SANITARY MANHOLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE

The City of Traverse City
Engineering Department
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684

CITY OF TRAVERSE
2015 WEST FRONT STREET RECONSTRUCTION PROJECT
TRAFFIC SIGNAL DETAILS

Revision/Issue	Date
BID SET	2/24/15

Date: 1-28-15
Project No.: 2015-01
Drawn by: JLC
Scale: 1" = 10'
Sheet No.: 24 OF 27