

ALLEGAN COUNTY ROAD COMMISSION

21ST STREET CULVERT REPLACEMENT PROJECT

1,960' SOUTH OF M222

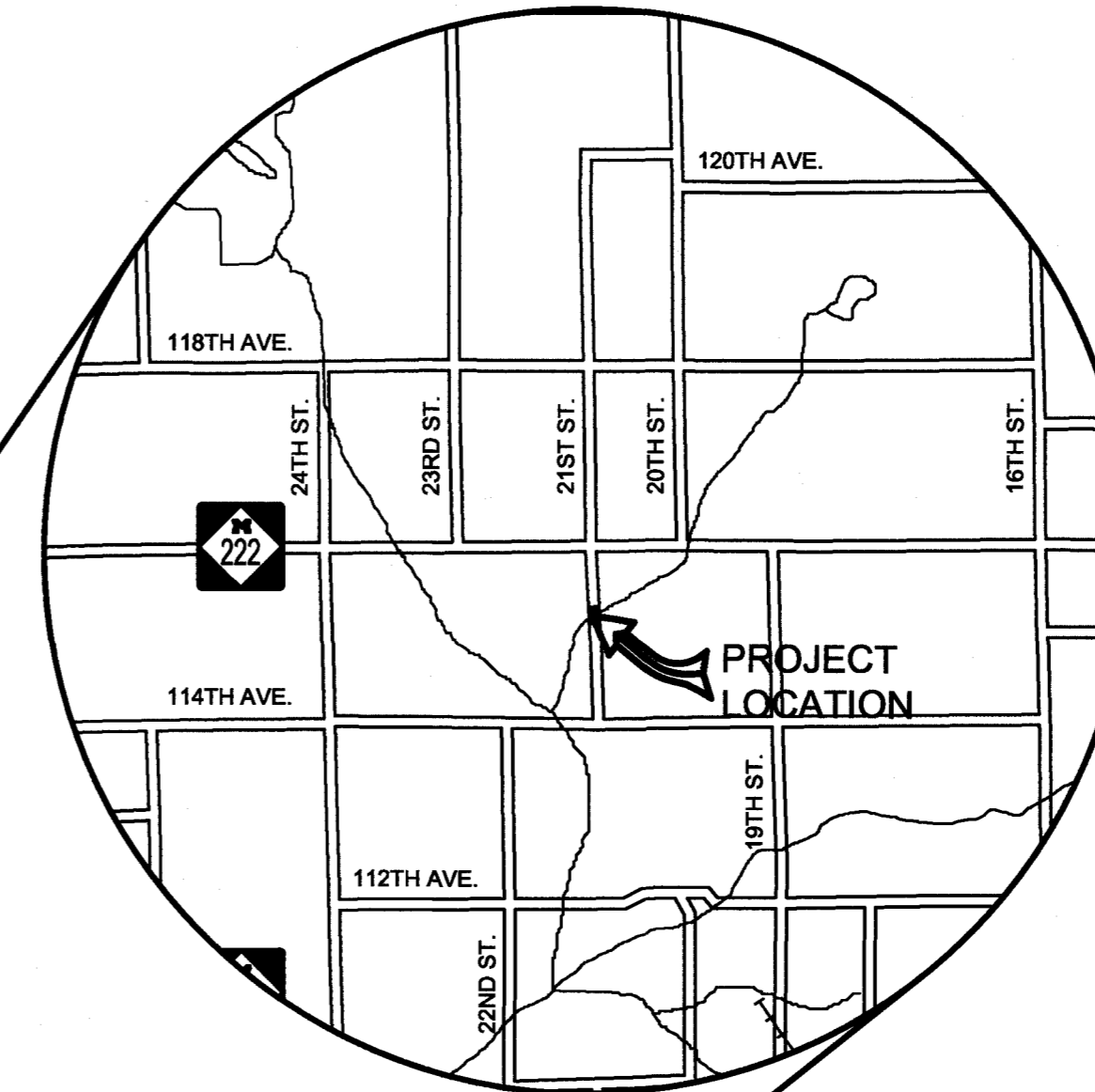
WATSON TOWNSHIP

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE PLACING OF PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS AMENDED.

THE IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2011 EDITION; A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

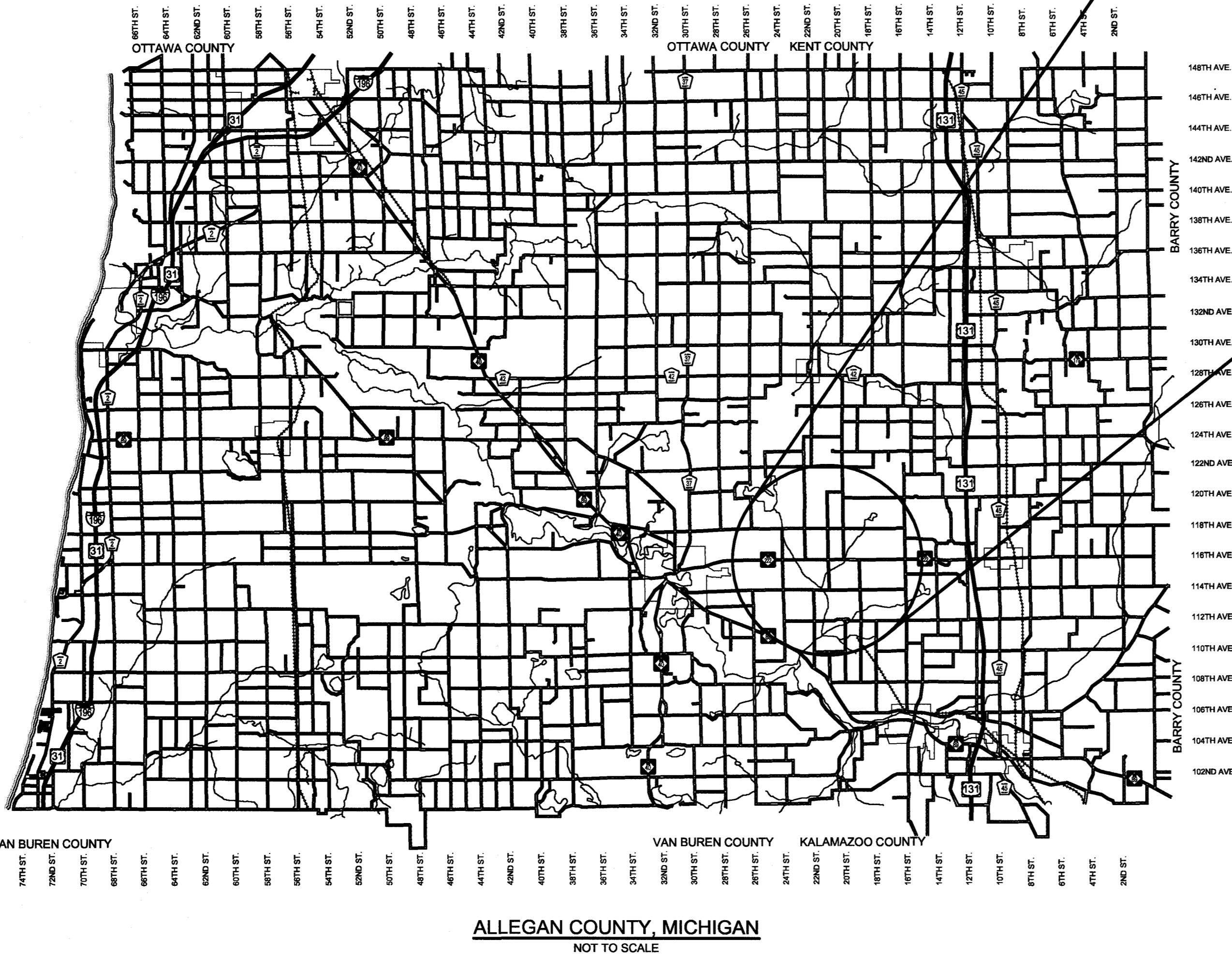
THE CONTRACTOR SHALL DIAL MISS DIG @ 811 FOR PROTECTION OF UNDER GROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.



UTILITY CONTACTS	
ELECTRIC	CONSUMERS ENERGY 4000 CLAY AVE, SW GRAND RAPIDS, MI 49548 616-530-4185 MS. KYLEE MAYCROFT grovwmp@consumersenergy.com
TELEPHONE	FRONTIER 601 N. US 131 THREE RIVERS, MI 49093 269-273-0383 MR. JEREMY MCCORD jeremy.mccord@fr.com
MISS DIG 811	

**Board of County Road Commissioners
Of Allegan County**
1308 LINCOLN ROAD
ALLEGAN, MICHIGAN 49010-9762
TELEPHONE (269) 673-2184 www.alleganroads.org FAX (269) 673-5922

REVISIONS	
1	
2	
3	
4	
5	
6	
7	



- INDEX OF PLANS**
- 1 - COVER SHEET
 - 2 - TYPICAL SECTIONS, DETAILS, & NOTES
 - 3 - PLAN & PROFILE AND SOIL EROSION AND SEDIMENTATION CONTROL PLAN

CONTRACT FOR ROAD IMPROVEMENTS
CULVERT REPLACEMENT INCLUDING GRADE ESTABLISHMENT, SAND SUBBASE, AGGREGATE BASE, HMA PAVING, GRAVEL SHOULDERS, AND RESTORATION ON 21ST STREET APPROXIMATELY 1,960 FEET SOUTH OF M222 IN WATSON TOWNSHIP, ALLEGAN COUNTY.

PREPARED UNDER THE SUPERVISION OF:

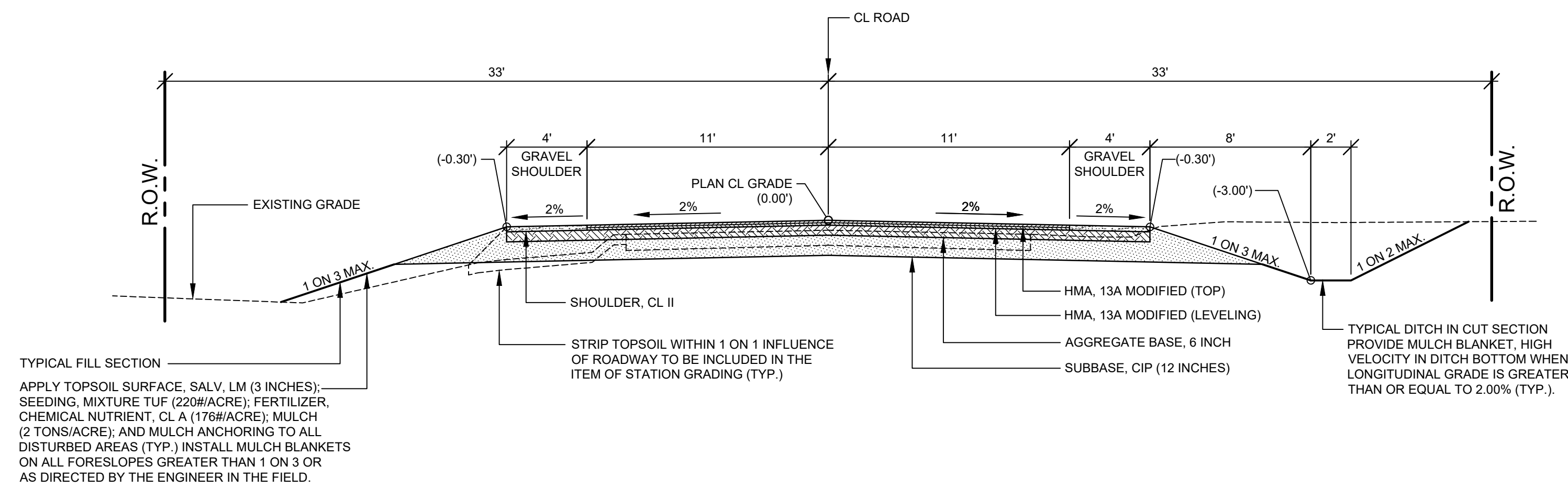
Ryan P. Brown

RYAN P. BROWN
REGISTERED PROFESSIONAL ENGINEER No. 65933

21ST STREET CULVERT REPLACEMENT
WATSON TOWNSHIP - 1,960' SOUTH OF M222

COVER SHEET

DRAWN BY:	RPB
REVIEWED BY:	JSE
DATE:	MAY, 2019
SCALE:	NONE



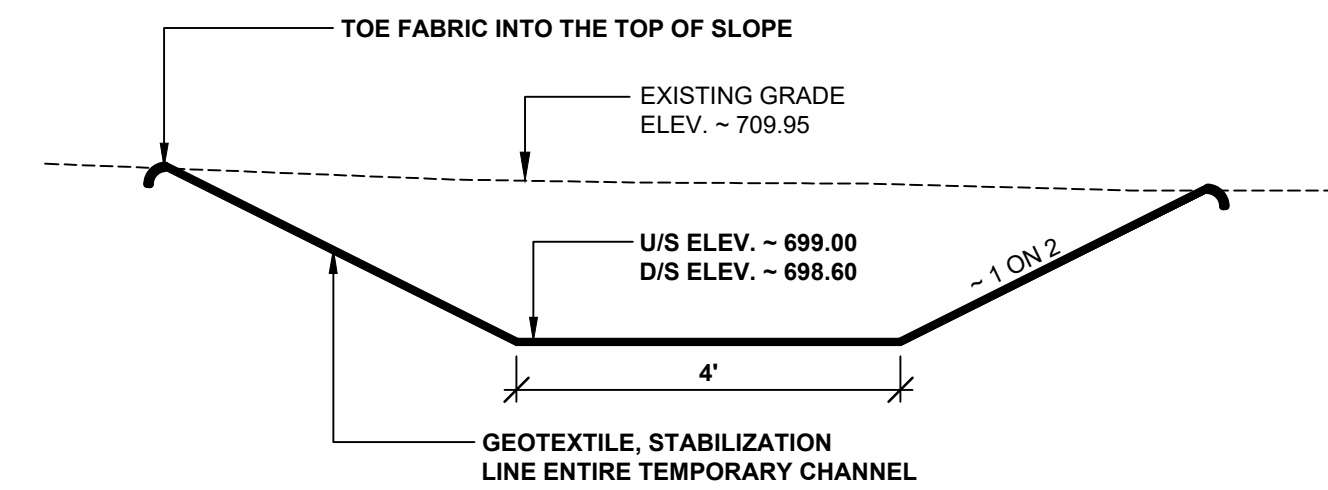
TYPICAL SECTION - 21ST STREET
SCALE: 1" = 5'

TYPICAL FILL SECTION
APPLY TOPSOIL SURFACE, SALV. LM (3 INCHES); SEEDING, MIXTURE TUF (220#/ACRE); FERTILIZER, CHEMICAL NUTRIENT, CL A (176#/ACRE); MULCH (2 TONS/ACRE); AND MULCH ANCHORING TO ALL DISTURBED AREAS (TYP.) INSTALL MULCH BLANKETS ON ALL FORESLOPES GREATER THAN 1 ON 3 OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

STRIP TOPSOIL WITHIN 1 ON 1 INFLUENCE OF ROADWAY TO BE INCLUDED IN THE ITEM OF STATION GRADING (TYP.)

GRAVEL SHOULDER
PLAN CL GRADE (0.00')
GRAVEL SHOULDER
HMA, 13A MODIFIED (TOP)
HMA, 13A MODIFIED (LEVELING)
AGGREGATE BASE, 6 INCH
SUBBASE, CIP (12 INCHES)

TYPICAL DITCH IN CUT SECTION PROVIDE MULCH BLANKET, HIGH VELOCITY IN DITCH BOTTOM WHEN LONGITUDINAL GRADE IS GREATER THAN OR EQUAL TO 2.00% (TYP.).



TEMPORARY CHANNEL CROSS SECTION
SCALE 1" = 2'

ITEM	AWI	YIELD	PERFORMANCE GRADE
HMA, 13A MODIFIED (TOP)	260	220 #/SYD	P.G. 64 - 28
HMA, 13A MODIFIED (LEVELING)		220 #/SYD	P.G. 64 - 28
HMA BOND COAT (NOT A PAY ITEM)		0.05 TO 0.15 GAL/SYD	SS - 1h

HMA APPLICATION TABLE

PROJECT NOTES

THE "2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND "STANDARD PLANS" BY THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) ARE HEREBY INCORPORATED INTO THESE CONTRACT DOCUMENTS. COPIES OF THESE STANDARDS ARE AVAILABLE FOR INSPECTION AT THE OFFICE OF THE ENGINEER.

THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE ALLEGAN COUNTY ROAD COMMISSION TO NOTIFY THEM THAT WORK IS COMMENCING AT LEAST ONE WEEK PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL SET UP THE NECESSARY DETOUR ROUTE AND WILL BE RESPONSIBLE FOR PROVIDING THE BARRICADES.

THE CONTRACTOR SHOULD NOTE THAT STATION GRADING WILL INCLUDE THE REMOVAL OF FENCES, CULVERTS, BRUSH, TREES SMALLER THAN 6" CONCRETE FOUNDATIONS, GUARDRAIL, AND MISCELLANEOUS ITEMS AS REQUIRED AND WILL ALSO INCLUDE ALL EARTH EXCAVATION, EMBANKMENT, AND ALL OTHER OPERATIONS NECESSARY TO DEVELOP THE DESIRED CROSS SECTION. ALL TOPSOIL AND OTHER UNSUITABLE MATERIAL LOCATED BENEATH THE PROPOSED PAVEMENT SECTION WILL BE REMOVED TO THE SUBGRADE ELEVATION AS PART OF STATION GRADING. ALL TOPSOIL REMOVED MAY BE STOCKPILED AND REUSED AS TOPSOIL SURFACE, SALV. LM.

ALL FILL FOR THIS PROJECT MUST BE OBTAINED AND FURNISHED BY THE CONTRACTOR. ALL REQUIRED FILL SHALL BE SELECTED EXCAVATED MATERIAL FROM THE SITE APPROVED BY THE ENGINEER OR MDOT CLASS II GRANULAR MATERIAL FROM BORROW. EXCESS FILL WILL BE REMOVED FROM SITE BY THE CONTRACTOR. NO BORROW OR SOIL REMOVAL ARRANGEMENTS HAVE BEEN PREARRANGED FOR THIS PROJECT AND WILL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR.

THE ITEM OF SUBBASE, CIP WILL BE PAID FOR AT PLAN QUANTITY EXCEPT IN THE CASE OF A DESIGN CHANGE OR DEMONSTRATED ERROR.

ALL DISTURBED AREAS NOT TO BE PAVED WILL BE RESTORED WITH TOPSOIL SURFACE, SALV. LM (3 INCHES), MDOT SEED MIXTURE TUF (220#/ACRE); FERTILIZER, CHEMICAL NUTRIENT, CL A (176#/ACRE); AND MULCH AND MULCH ANCHORING (2 TON/ACRE). TO BE PAID AS RESTORATION (LUMP SUM).

ADEQUATE DUST CONTROL MEASURES WILL BE MAINTAINED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD, TO BE INCLUDED IN THE VARIOUS ITEMS OF WORK.

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EXISTING DRAINAGE PATTERNS, AND WILL RESOLVE ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH MAY RESULT FROM THE CONTRACTOR'S ACTIVITIES.

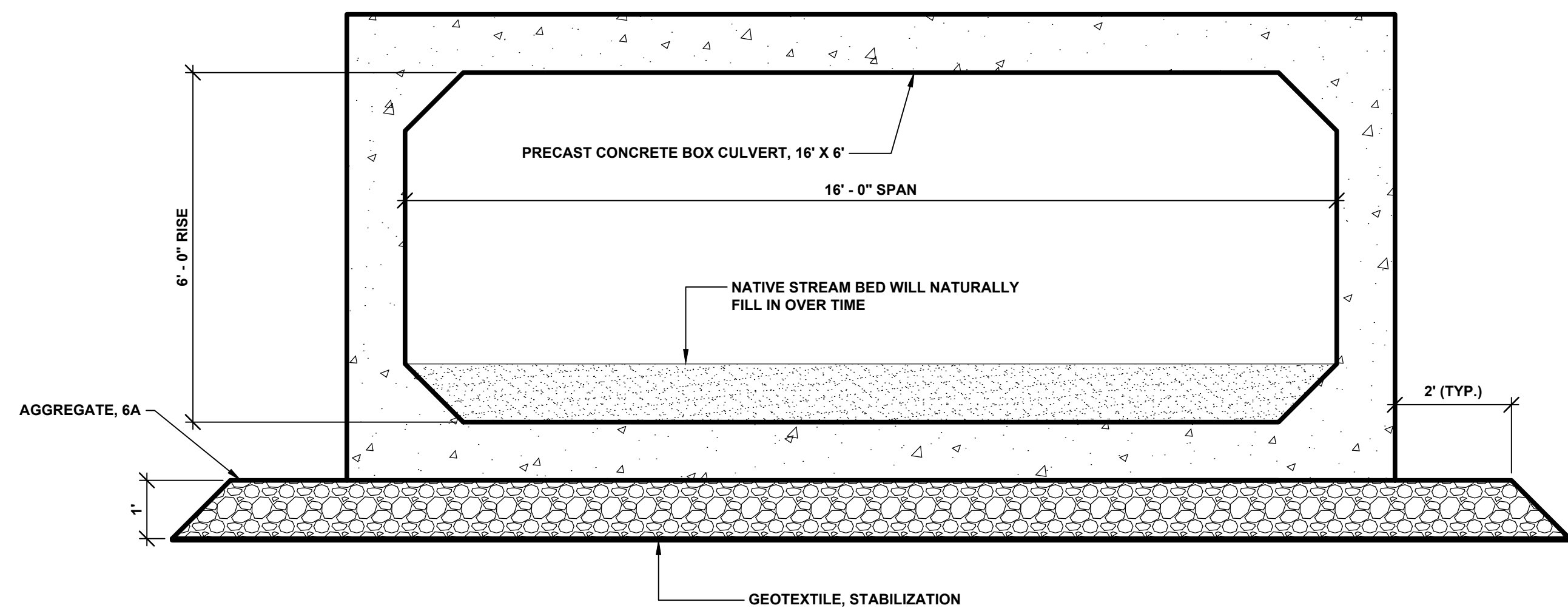
DATUM REFERS TO NAVD88 DATUM.

DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD.

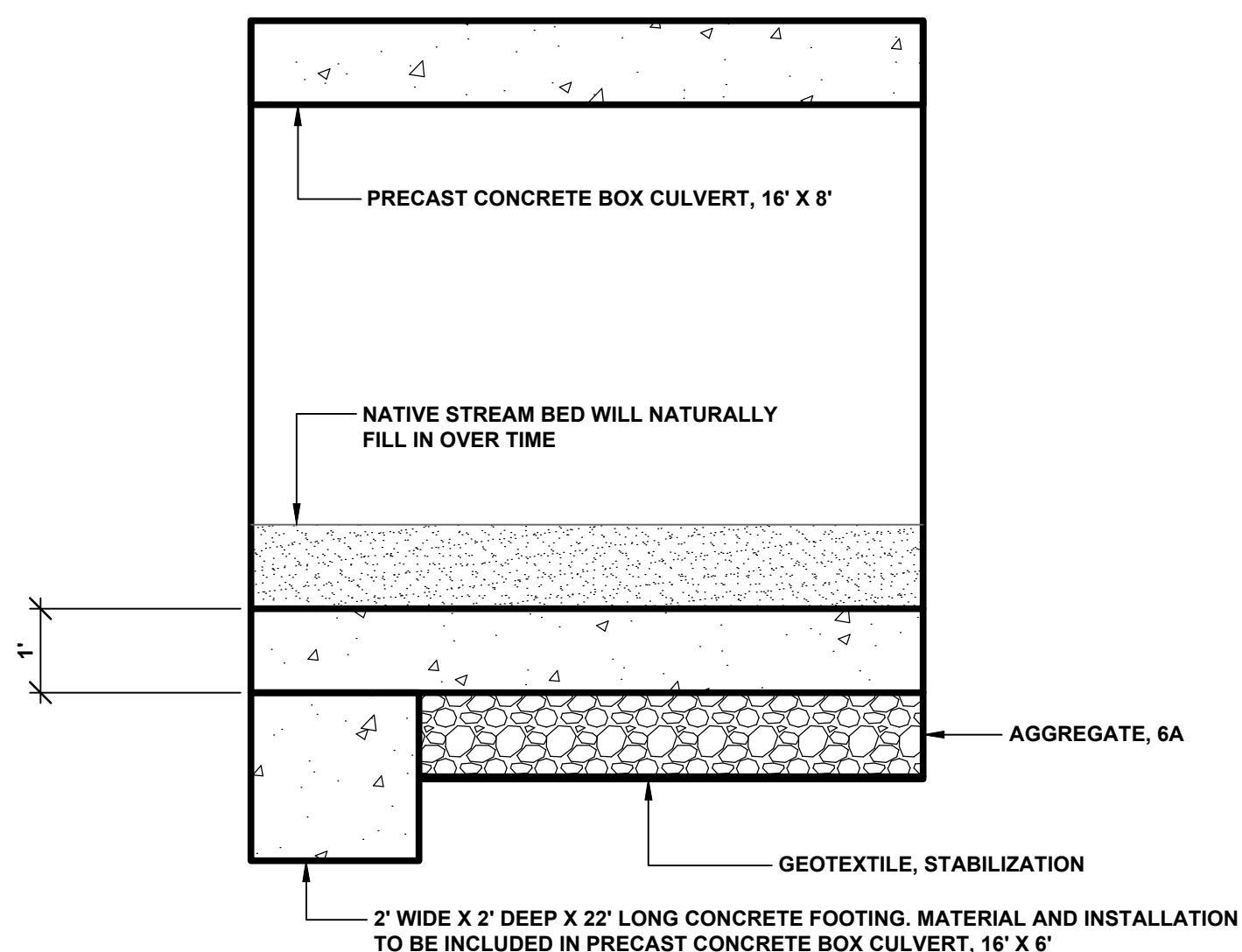
UTILITY NOTES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR WILL CONTACT "MISS DIG" AT 811, A MINIMUM OF 72 HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

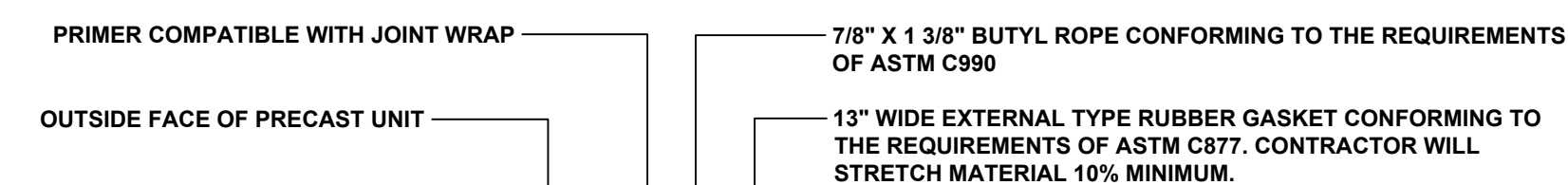
THE CONTRACTOR WILL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND WILL CONDUCT HIS OPERATIONS IN A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.



SECTION A - A
SCALE 1" = 2'

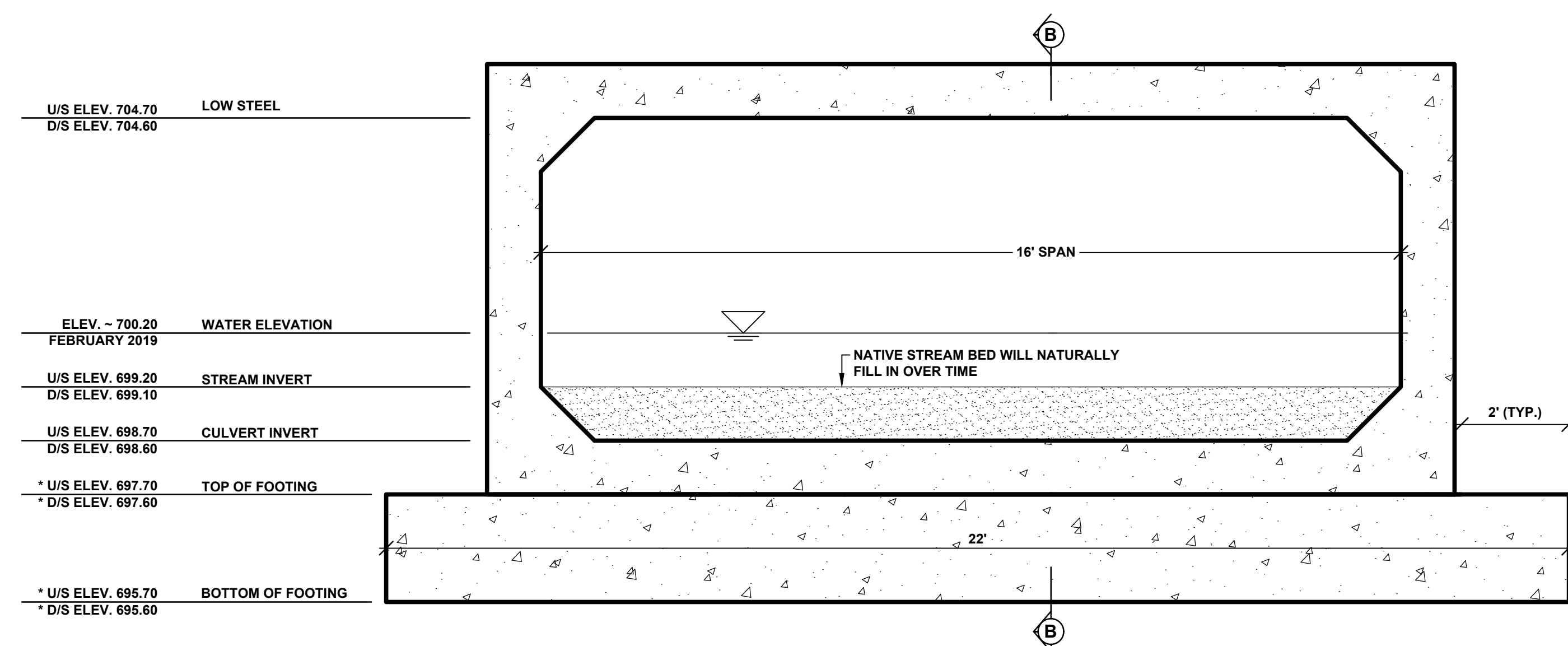


SECTION B - B
SCALE 1" = 2'



TYPICAL JOINT SEAL DETAIL

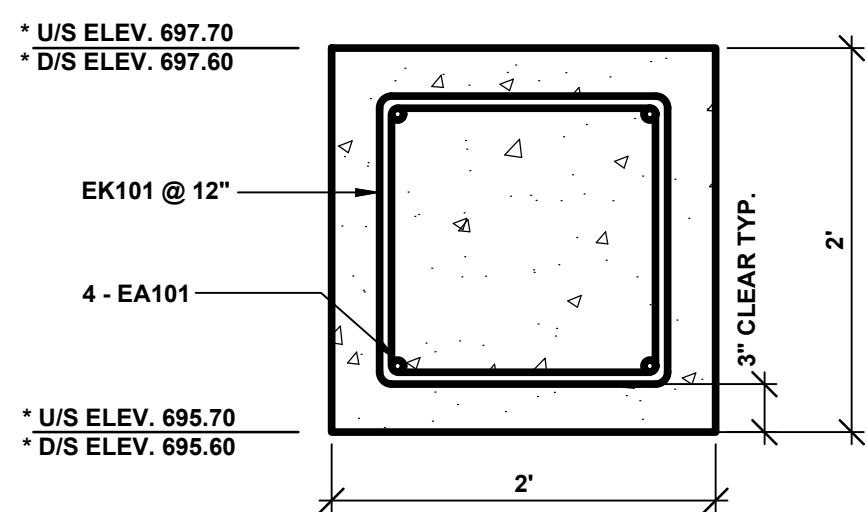
NOTE:
THE BOX CULVERT SECTIONS SHALL HAVE TONGUE AND GROOVE ENDS. THE CONTRACTOR SHALL INCLUDE A JOINT DETAIL ON THE SHOP DRAWINGS TO BE APPROVED BY THE ENGINEER. THE EXTERNAL TYPE RUBBER GASKET SHALL BE COVERED WITH A 2" STRIP OF GEOTEXTILE BLANKET CENTERED OVER THE JOINT.



TYPICAL INLET AND OUTLET SECTION
SCALE 1" = 2'

U/S ELEV. 704.70	LOW STEEL
D/S ELEV. 704.60	
ELEV. ~ 700.20	WATER ELEVATION
FEBRUARY 2019	
U/S ELEV. 699.20	STREAM INVERT
D/S ELEV. 699.10	
U/S ELEV. 698.70	CULVERT INVERT
D/S ELEV. 698.60	
* U/S ELEV. 697.70	TOP OF FOOTING
* D/S ELEV. 697.60	
* U/S ELEV. 695.70	BOTTOM OF FOOTING
* D/S ELEV. 695.60	

* NOTE:
INVERT ELEVATION OF BOX CULVERT GOVERNS. TOP OF FOOTING & BOTTOM OF FOOTING ELEVATIONS MAY VARY BASED UPON THE MANUFACTURER'S CULVERT DESIGN. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE FOOTING ACCORDINGLY.



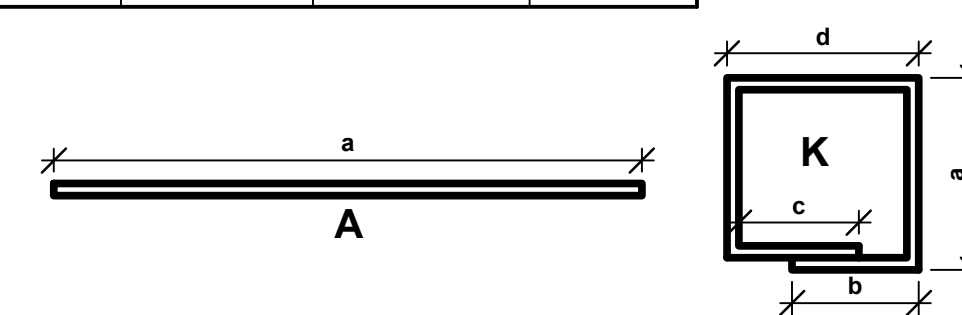
FOOTING DETAIL
SCALE 1" = 1'

STEEL REINFORCEMENT SCHEDULE								
BAR	a	b	c	d	SIZE	LENGTH	NO. REQUIRED	TOTAL WEIGHT
EA101	21' - 6"				#6	21' - 6"	8	258
EK101	1' - 6"	1' - 0"	1' - 0"	1' - 6"	#6	6' - 6"	46	449

NOTES:
ALL RIGHT ANGLE BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMAL DIAMETER ALLOWED BY THE STANDARD SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING THE ABOVE REINFORCING STEEL QUANTITIES AND LENGTHS PRIOR TO ORDERING DELIVERY OF STEEL.

STEEL REINFORCEMENT WITH BAR DESIGNATIONS BEGINNING WITH THE LETTER "E" WILL BE EPOXY COATED.



**Board of County Road Commissioners
Of Allegan County**
1308 LINCOLN ROAD
ALLEGAN, MICHIGAN 49010-9762
www.alleganroads.org
TELEPHONE (269) 673-2184 FAX (269) 673-5922

REVISIONS
1
2
3
4
5
6
7

21ST STREET CULVERT REPLACEMENT
WATSON TOWNSHIP - 1,960' SOUTH OF M222
TYPICAL SECTIONS, DETAILS, & NOTES

DRAWN BY: RPB
REVIEWED BY: RPB
DATE: MAY, 2019
SCALE: AS NOTED

REVISIONS	
1	
2	
3	
4	
5	
6	
7	

46TH STREET CULVERT REPLACEMENT
OVERISEL TOWNSHIP - 170' SOUTH OF 143RD AVENUE
PLAN & PROFILE AND SOIL EROSION & SEDIMENTATION CONTROL PLAN

DRAWN BY: RPB
REVIEWED BY: JSE
DATE: MAY, 2019
SCALE: 1" = 40'H, 5'V

