Issued

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
APPLICATION FOR AQUATIC RESOURCE ALTERATION PERMIT (ARAP)
&
STATE §401 WATER QUALITY PERMIT

ARAP 2013 (Marion) fee:

Section 1: Applicant Information An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official or other duly authorized employee.				
Name: John Thornton		**Title or Position:** Owner/Developer		
Company Name: Thunder Enterprises				
Mailing Address: 210 Battle Creek Road		**City:** Kimball	**State:** TN	**Zip:** 37380
Phone: (423) 265-0781	**Fax:**	**E-mail:**		
Section 2: Alternate contact within your organization (not required)				
Name:		**Title or Position:**		
Mailing Address:		**City:**	**State:**	**Zip:**
Phone:	**Fax:**	**E-mail:**		
Section 3: Consultant Information (a consultant is not required)				
Name: Greg Scotchie, P.E.*		**Title or Position:** Project Engineer		
Company Name: CTI Engineers, Inc.				
Mailing Address: 1122 Riverfront Parkway		**City:** Chattanooga	**State:** TN	**Zip:** 37402
Phone: 423/267-7613	**Fax:** 423/267-0603	**E-mail:** gscotchie@ctiengr.com		

→ Place a * next to the individual's name listed above that should be the primary contact during the application process ←

Section 4: Fee (check appropriate box and submit appropriate fee with application)

Amount of fee:

☐ **$50.00** ☐ **$1,000.00** ☐ **$2,500.00** ☒ **no fee required**

Requests for General Permit coverage require no fee. Requests for Individual Permit alterations on private farms and residences require a $50.00 application fee. Requests for Individual Permit alterations less than 1,000 feet of stream or less than 10 acres of wetland require a $1,000.00 application fee. Requests for alterations over 1,000 feet of stream and greater than 10 acres of wetlands require a $2,500.00 application fee. (Checks payable to Treasurer, State of Tennessee.)

Section 5: Project Details (fill in information and check appropriate boxes)

Project / Site Name: Jasper Mountain Subdivision - Phase I

Nearest City, Town or Major Landmark: Jasper, TN

County: Marion

Resource Proposed for Alteration:
☒ **Stream** ☐ **Wetland** ☐ **Reservoir**
Name of Resource: Raulston Branch & Unnamed Tributaries to Battle Creek

Latitude: (decimal degrees, NAD83): See USGS map
Longitude: (decimal degrees, NAD83): See USGS map

Type of proposed alteration(s):
☐ **Road Crossing**
☒ **Utility Line**
☐ **Intake/Outfall Structure**
☐ **Stream or Wetland Restoration**
☐ **Wetland Fill/Excavation**
☐ **Other:**
☐ **Dredging**
☐ **Launching Ramp**
☐ **Bank Stabilization**
☐ **Maintenance Activities**
☐ **Water Withdrawal**

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CHATTANOOGA FIELD OFFICE

Brief Project Description (a more detailed description is requested in Section 8):
The overall project includes installation of two new water booster pump stations, and new 15,000 gallon water storage. Approximately 36,000 linear feet of new potable water line ranging from 2 to 8 inches in diameter).

Do any other alterations require approval from any other state, federal, or local government agency associated with the project site? If yes, provide brief description and status of approval.
Application for Department of the Army (DA) Permit; approval pending, Revised Storm Water Pollution Prevention Plan (SWPPP); approval pending.

Section 6: Directions to Project Site

Travel westbound on I-24, take exit 152B toward US-41 Kimball. Turn RIGHT onto US-72/US-64E/TN-150N. Travel approximately 0.6 miles and turn LEFT onto Timber Ridge Drive. Travel up the mountain approximately 1.5 miles to the beginning of the subdivision site.

Section 7: Project Schedule (fill in information and check appropriate boxes).

How long will it take to perform the proposed activity?
Approximately 1 month to install the waterline crossings.

Is any portion of the activity complete now? ☐ **Yes** ☒ **No**
If yes, describe the extent of the completed portion below:

The required information in sections 8 - 12 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented. If you believe that a certain request does not pertain to your project, explain the reason.

Section 8: Project Description

8.1 A narrative description of the scope of the project
8.2 USGS topographic map indicating the exact location of the project (can be photographic copy)
8.3 Photographs of the resource(s) proposed for alteration with location description (photo locations should be noted on map)
8.4 A narrative description of the existing stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation
8.5 A narrative description of the proposed stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation
8.6 In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points

Section 9: Purpose and Justification

9. Describe the purpose for the proposed activity and overall project

Section 10: Alternatives

10. Describe all practicable alternatives considered, including what has been done to avoid or minimize impacts to streams or wetlands. For activities not covered by General Permit, each alternative must include the following: (1) feasibility, (2) environmental consequences and (3) social and economic benefits of each alternative.

Section 11: Mitigation

11.1 A detailed discussion of the proposed mitigation, if required
11.2 If you believe mitigation is not required, state the reason or cite the regulation to support this position
11.3 A detailed discussion of why you believe the mitigation would result in no net loss of resource value
11.4 A detailed description of the proposed monitoring plan for the mitigation site
11.5 A discussion of long term protection measures for the mitigation site

Section 12: Technical Information

12.1 Detailed plans, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5 x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans need to include dimensions of the existing and proposed stream or wetland such as depth, length, average width, substrate and riparian vegetation.

12.2 If mitigation is proposed, submit detailed plans, blueprints, or legible sketches of the proposed mitigation

12.3 For both the proposed activity and mitigation, provide a discussion regarding the sequencing of events

12.4 Location and type of erosion prevention and sediment control measures for the proposed alterations

12.5 A discussion on how the proposed activity will be performed (construction methods)

12.6 A copy of all hydrologic or jurisdictional determination documents issued for the water resources on the project site.

Section 13: Certification and Signature:

I certify under penalty of law that this document and all attachments were prepared at my request or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

John Thornton	Owner/Developer		12-26-13
Printed Name	Official Title	Signature	Date

Section 14: Where do I send my application?

For General Permit coverage, submit the original completed and signed application to the local Environmental Field Office (EFO) for the county of your activity. Addresses of the EFOs are listed below. Mark the application ATTN: Water Pollution Control. Submit all applications for Individual ARAPs to the Natural Resources Section at the following address, and send a copy to the appropriate EFO.

Tennessee Department of Environment and Conservation
Water Pollution Control
Natural Resources Section
7th Floor L&C Annex
401 Church Street
Nashville, TN 37243

Jackson EFO	Nashville EFO	Cookeville EFO	Johnson City EFO
1625 Hollywood Drive 38305 Phone: 731-512-1300 Counties: Benton, Carroll, Chester, Crockett, Decatur, Dyer, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, Madison, McNairy, Obion, Weakley	711 R. S. Gass Boulevard 37243 Phone: 615-687-7000 Counties: Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Trousdale, Williamson, Wilson	1221 South Willow Ave. 38506 Phone: 931-432-4015 Counties: Cannon, Clay, Cumberland, Dekalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren, Warren, White	2305 Silverdale Road 37601 Phone: 423-854-5400 Counties: Carter, Greene, Hancock, Hawkins, Johnson, Sullivan, Unicoi, Washington
Memphis EFO	**Columbia EFO**	**Chattanooga EFO**	**Knoxville EFO**
8383 Wolf Lake Drive Bartlett, Tennessee 38133 Phone: (901) 371-3000 Counties: Fayette, Shelby, Tipton	1421 Hampshire Pike Columbia, TN 38401 Phone: 931-380-3371 Counties: Bedford, Coffee, Franklin, Giles, Hickman, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry, Wayne	540 McCallie Avenue STE 550 State Office Building 37402 Phone: 432-634-5745 Counties: Bledsoe, Bradley, Grundy, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, Sequatchie	3711 Middlebrook Pike 37921 Phone: 865-594-6035 Counties: Anderson, Blount, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Loudon, Monroe, Morgan, Roane, Scott, Sevier, Union

Section 15: Administrative Information (Official Use Only).

Date Received:	File# assigned:	Fee paid:	Application administratively complete:	Complete Application date:
12/30/13	NR1401. 003	☐ Yes ☐ No ☑ N/A Ck #	☑ Yes ☐ No	1/20/14

Section 8: Project Description

8.1 Thunder Enterprises plans on installing two new water booster pump stations, a new 15,000 gallon water storage tank, and approximately 36,000 linear feet (L.F.) of potable water mains (ranging from 2 to 8 inches in diameter) and associated appurtenances in a new subdivision development (Jasper Highlands Development) in Kimball, Tennessee. The installation will take place in two phases. The two new water booster pump stations, the new water storage tank, and approximately 21,925 L.F. of the piping will be installed in the first phase and approximately 14,295 L.F. of the piping will be installed in the second phase. As described in Section 8.4 of this application, there are two proposed stream crossings along the water main installation route. Both crossings will occur when the piping is installed for the second phase of the development. An ARAP has been previously approved for the installation of a box culvert at each crossing location.

8.2 See attached USGS topographic location map.

8.3 See attached Photos 1 through 3 and 49 through 51. These photos were included in a report entitled *"Report of Jurisdiction Waters Determination"* and prepared by S&ME (4291 Highway 58, Suite 101, Chattanooga, Tn. 37416) on August 31, 2011. The entire report was included in the General Aquatic Resources Alteration Permit (ARAP) Application for Minor Road Crossings for Jasper Mountain Phase I Development submitted by AD Engineering Services, Inc. on September 21, 2011 and approved by TDEC.

8.4 Crossing No.1

As described in ARAP application submitted by AD Engineering Services, Inc. on September 21, 2011: "At this proposed crossing point, the existing channel is approximately 9 feet wide at bankfull height, 9 feet and 10 inches wide at top of bank, and 2 feet and 5 inches deep at the bankfull height. The substrate is composed of bedrock and boulders with some sand, silt, and gravel." In the report mentioned above and entitled *"Report of Jurisdiction Waters Determination"*, this crossing is referred to as "Point 2, Culvert 1." See attached photos.

Crossing No.2

As described in ARAP application submitted by AD Engineering Services, Inc. on September 21, 2011: "At this proposed crossing point, the existing channel is approximately 13 feet and 7 inches wide at bankfull, 17 feet wide at top of bank, and 11 inches deep at bankfull. The substrate is entirely bedrock." In the report mentioned above and entitled *"Report of Jurisdiction Waters Determination"*, this crossing is referred to as "Point 23, Culvert 14c." See attached photos.

8.5 Not applicable.

8.6 Not applicable.

Section 9: Purpose and Justification

9.0 The purpose of the Jasper Highlands Development Water Distribution System project is to provide potable water service to the residents of the new development.

Section 10: Alternatives

10.0 The layout of the new potable water distribution system was selected as the most feasible layout to provide potable water service at acceptable pressures to the residents in the new development. There are no feasible alternatives.

Section 11: Mitigation

11.1 Not applicable.

11.2 This permit qualifies for coverage under the "General Permit for Construction of Utility Line."

11.3 Not applicable.

11.4 Not applicable.

11.5 Not applicable.

Section 12: Technical Information

12.1 See attached creek crossing plans, typical creek crossing detail, and *"Utility Line Crossings of Streams"* specification.

12.2 Not applicable.

12.3 Crossing No.1

Installation of the new 8-inch water main segment at this crossing location will be done as the overall 8-inch water main is installed in a northwesterly direction along the new "Raulston Falls Road" roadway as shown on the attached drawings and details and as described in the attached *"Utility Line Crossings of Streams"* specification. At this stream crossing, the contractor will install the force main by the open-cut method.

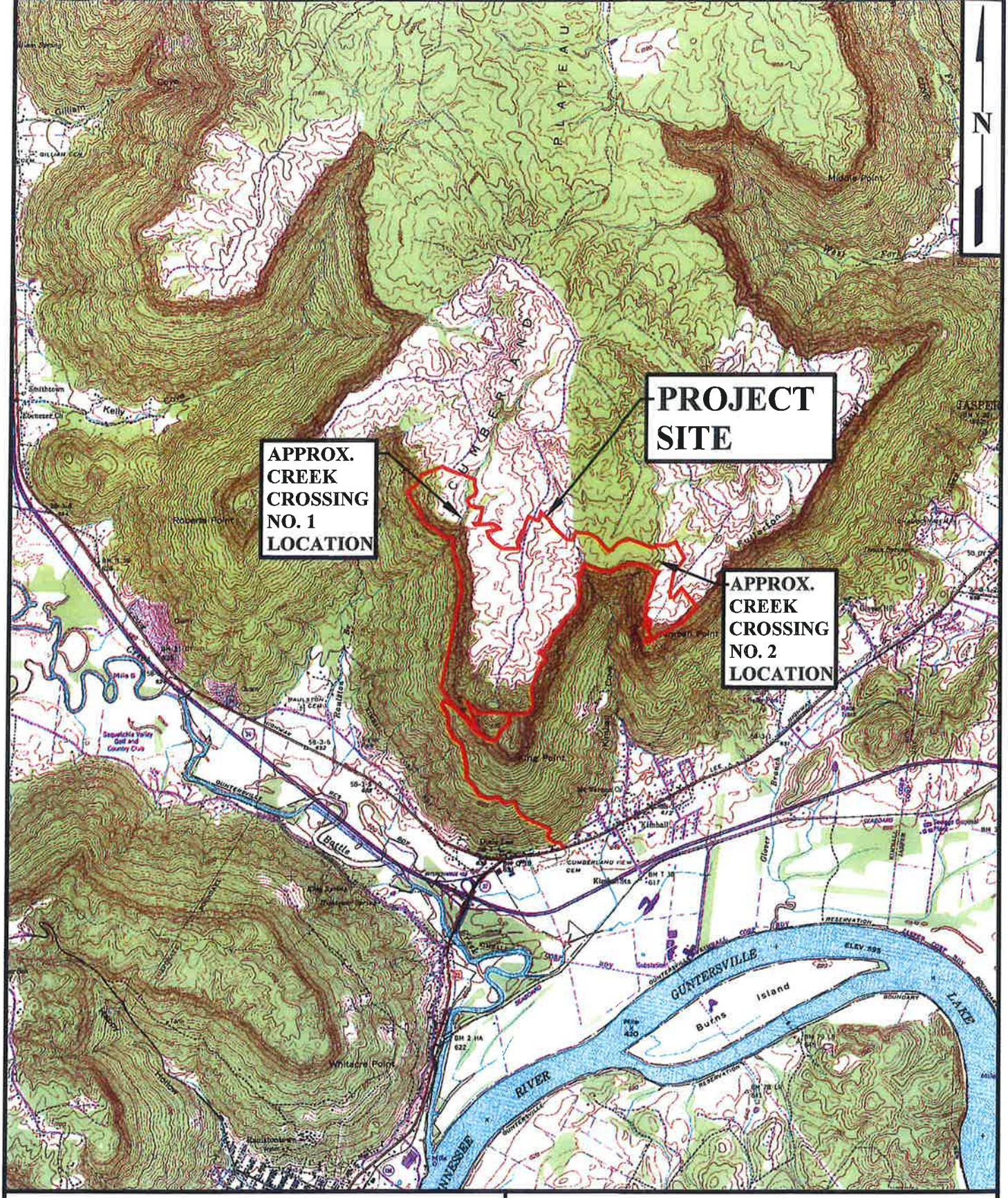
Crossing No.2

Installation of the new 8-inch water main segment at this crossing location will be done as the overall 8-inch water main is installed in a northeasterly direction along the new "River Bluff's Drive" roadway as shown on the attached drawings and details and as described in the attached *"Utility Line Crossings of Streams"* specification. At this stream crossing, the contractor will also install the force main by the open-cut method.

12.4 Temporary cofferdams constructed of plastic and sandbags will be provided to isolate the construction activity from the flowing water. Stream flow will be piped or pumped around the construction work. The pipe will be encased in a concrete envelope to protect it from damage under the creek. The pipe trench in the streambed will then be backfilled with clean stone to match the adjoining stream bottom. The stream bottom will be restored to the original lines and grade. The stream banks will be seeded and stabilized using plastic turf reinforcement mat. Following construction, the temporary cofferdams will be removed. Please refer to the standard specification *"Utility Line Crossing of Streams"* and the creek crossing detail, attached. In either scenario, silt fence or silt socks will be installed to help prevent sediment from adjacent construction activity from entering the stream.

12.5 See description in Section 12.4.

12.6 As mentioned above, a report entitled *"Report of Jurisdiction Waters Determination"* was prepared by S&ME (4291 Highway 58, Suite 101, Chattanooga, Tn. 37416) on August 31, 2011. The entire report was included in the General Aquatic Resources Alteration Permit (ARAP) Application for Minor Road Crossings for Jasper Mountain Phase I Development submitted by AD Engineering Services, Inc. on September 21, 2011 and approved by TDEC.



4,000 0 4,000 8,000

SCALE IN FEET

GEOGRAPHIC COORDINATES

CROSSING NO.1: 35°04'15.7" N
85°41'27.9" W

CROSSING NO.2: 35°04'06.1" N
85°40'16.8" W

JASPER HIGHLANDS DEVELOPMENT WATER DISTRIBUTION SYSTEM

LOCATION MAP (CREEK CROSSINGS)

CTI ENGINEERS, INC. | THUNDER ENTERPRISES | C13009

C13009-01 Jasper Highlands Development Water System Design, ARAP - 2013-12-19, ID(399910)
CTI (2), 12/19/2013 09:02 AM

S&ME
4291 Highway 58, Suite 101
Chattanooga, TN 37416

Photo 1

Date: 8/18/2011

Photographer: Barry Burnette

Remarks	Basin #1 - Looking across channel

Photo 2

Date: 8/18/2011

Photographer: Barry Burnette

Remarks	Basin #1 - Looking upstream from point

S&ME
4291 Highway 58, Suite 101
Chattanooga, TN 37416

Photo 3

Date: 8/18/2011

Photographer: Barry Burnette

Remarks	Basin #1 - Looking downstream from point

Photo 4

Date: 8/18/2011

Photographer: Barry Burnette

Remarks	Basin #1 area - Groundwater seep observed (See Figure 2-Appendix A)

S&ME
4291 Highway 58, Suite 101
Chattanooga, TN 37416

Photo 49	
	Date: 8/18/2011 Photographer: Barry Burnette
Remarks	Culvert #14 a/b – Looking across channel

Photo 50	
	Date: 8/18/2011 Photographer: Barry Burnette
Remarks	Culvert #14 a/b – Looking upstream from point

S&ME
4291 Highway 58, Suite 101
Chattanooga, TN 37416

Photo 51

Date: 8/18/2011

Photographer: Barry Burnette

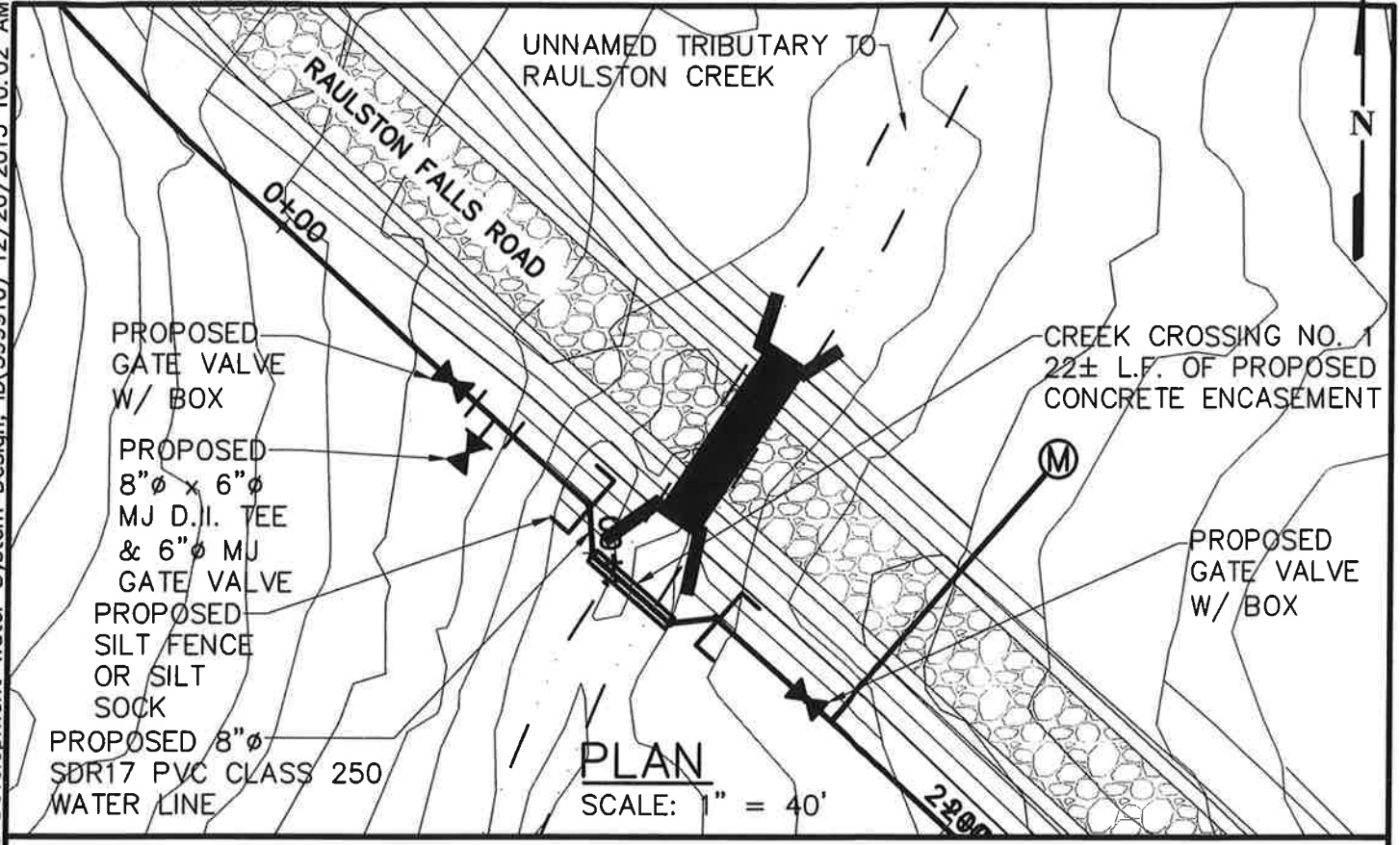
Remarks	Culvert #14 a/b – Looking downstream from point

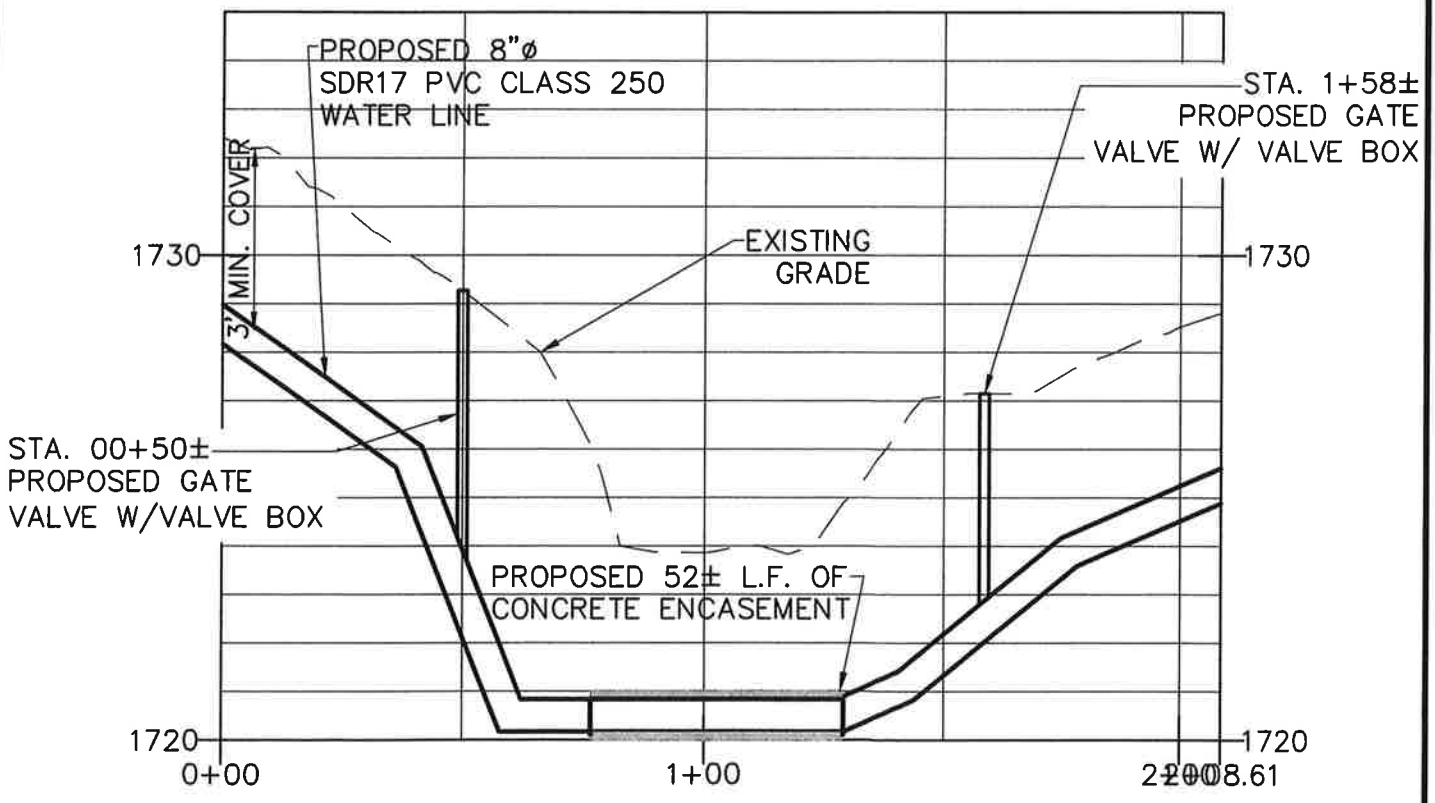
Photo 52

Date: 8/18/2011

Photographer: Barry Burnette

Remarks	Culvert #14 c – Looking across channel



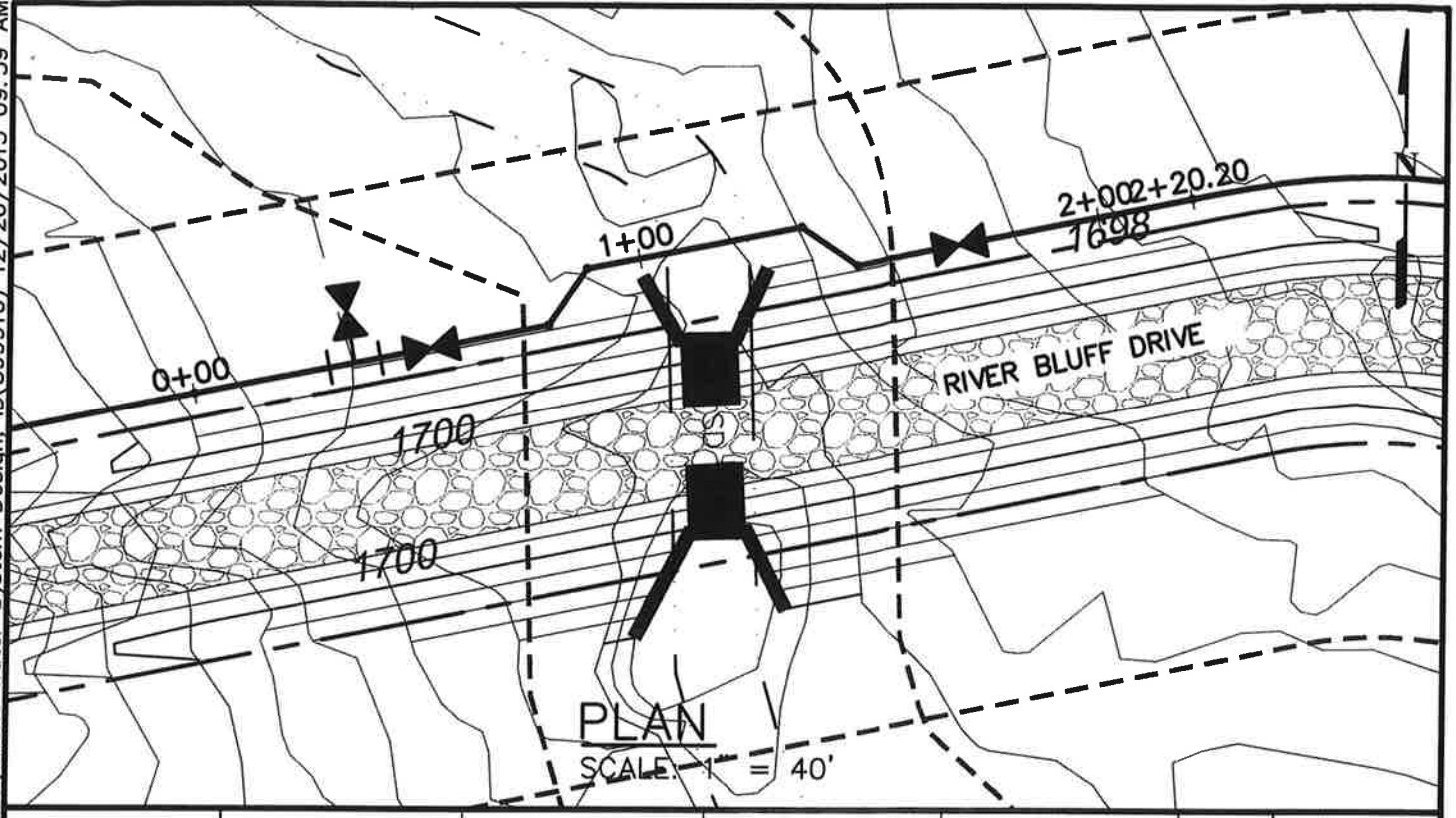


VERT.: 1" = 4'
HORIZ.: 1" = 40'

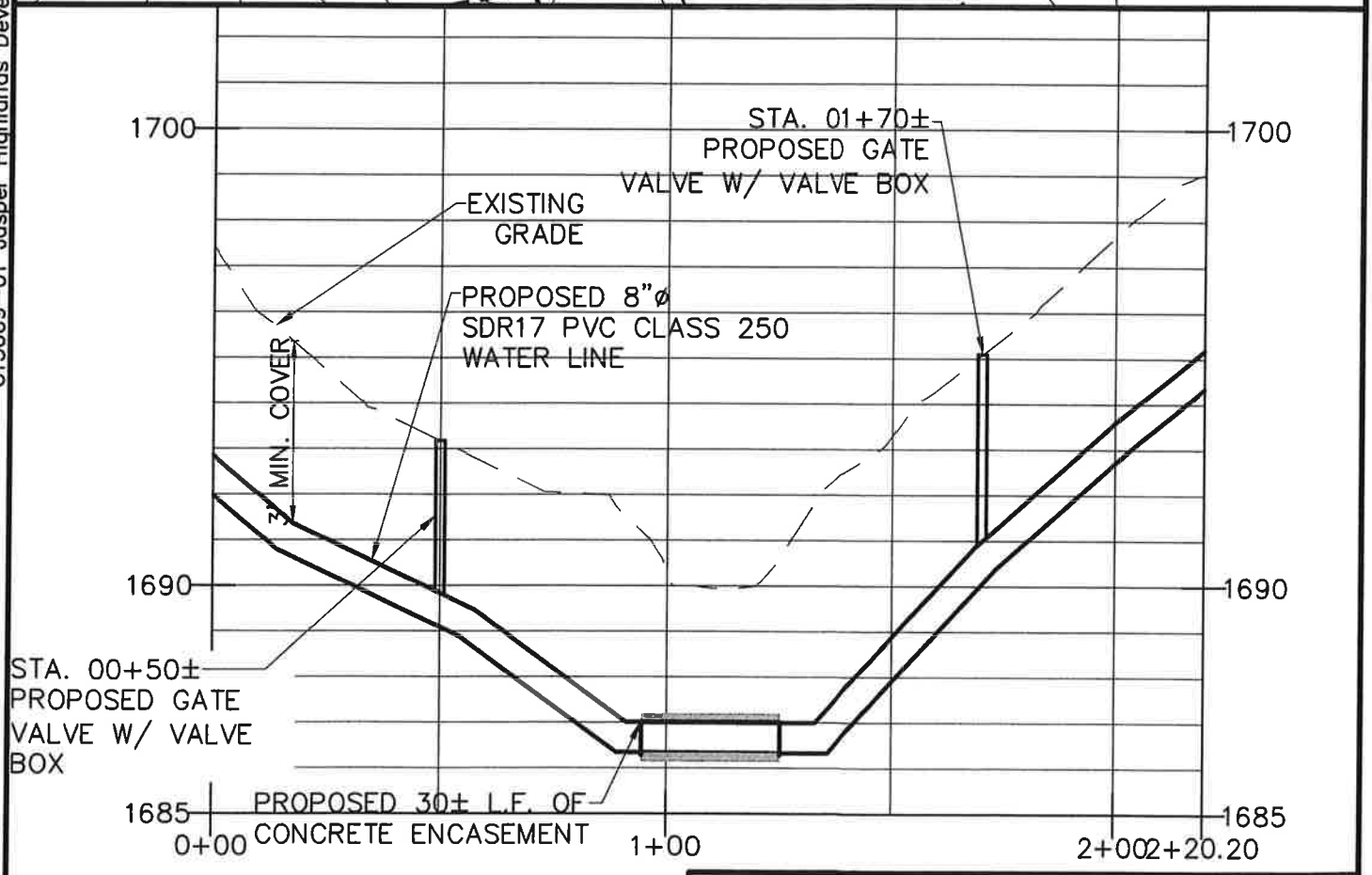
JASPER HIGHLANDS DEVELOPMENT
WATER DISTRIBUTION SYSTEM

CROSSING NO. 1
PROPOSED
CREEK CROSSING

CTI ENGINEERS, INC.	THUNDER ENTERPRISES	C13009



PLAN
SCALE: 1" = 40'



VERT.: 1" = 4'
HORIZ.: 1" = 40'

JASPER HIGHLANDS DEVELOPMENT
WATER DISTRIBUTION SYSTEM

CROSSING NO. 2
PROPOSED
CREEK CROSSING

CTI ENGINEERS, INC.	THUNDER ENTERPRISES	C13009

SECTION 31 4900

UTILITY LINE CROSSINGS OF STREAMS

PART 1 - GENERAL

1.1 SCOPE

A. When the activity is located in waters which are not navigable pursuant to Section 10 of the Rivers and Harbors Act of 1899, excavation and fill activities shall be separated from flowing waters. All surface water flowing toward the excavation or fill work shall be diverted, piped, or flumed to the downstream side of the work. This can be accomplished through utilization of cofferdams or constructed berms in conjunction with a pipe or flume. Cofferdams must be constructed of sand bags, clean rock, steel sheeting, or other non-erodible material.

B. Where the activity is located in waters defined as navigable pursuant to Section 10 of the Rivers and Harbors Act of 1899, excavation and fill work may be accomplished within the water column.

C. New utility line crossings shall be located such as to avoid permanent alteration or damage to the integrity of the stream channel. Large trees, steep banks, rock outcroppings, etc., should be avoided.

D. In case of proposed gravity sewer lines and other utility lines which follow the stream gradient or otherwise parallel the stream channel, the number of crossings shall be minimized.

E. The alignment of new utility line crossings shall intersect the stream channel as close to 90 degrees or as perpendicular as possible, and in no case less than a 45 degree angle from the center line of the stream.

F. In case of small streams with a bedrock stream bed which must be blasted to form a trench, provision shall be made to prevent the loss of stream flow to fracturing of the bedrock. These provisions shall include as a minimum sealing the bottom of the trench with concrete and complete concrete encasement of the pipeline.

G. Temporary erosion control measures must be in place before earthmoving operations begin, maintained throughout the construction period and repaired, if necessary, after rainfall. Straw or hay bales and/or silt fence must be installed along the base of all fills and cuts, on the downhill side of stock piled soil, and along stream banks in cleared areas to prevent erosion into streams. They must be installed parallel to the stream channel, entrenched and staked, and extend the width of the area to be cleared. The bales and/or silt fence may be removed at the beginning of the work day, but must be replaced at the end of the workday.

H. Backfill activities must be accomplished in a manner which stabilizes the stream bed and banks to prevent erosion. Backfill materials shall consist of suitable materials free of contaminants. All contours must be returned to pre-project conditions. The completed work may not disrupt or impound streamflow.

I. Slurry water pumped from work areas and excavations must be held in settling basins or treated by filtration prior to its discharge into surface waters. Water must be held in sediment basins until at least as clear as the receiving waters. Sedimentation basins shall not be located closer than 25 feet from the top bank of a stream. Sediment basins and traps shall be properly designed according to the size of the drainage areas or volume of water to be treated.

J. Checkdams shall be utilized where run-off is concentrated. Clean rock, log, sandbag, or straw bale checkdams shall be properly constructed to detain run-off and trap sediment.

K. Clearing, grubbing, and other disturbance to riparian vegetation shall be limited to the minimum necessary for slope construction and equipment operations. Unnecessary vegetation removal is prohibited. All disturbed areas shall be properly stabilized as soon as practicable.

L. Streams shall not be used as transportation routes for heavy equipment. Crossings must be limited to one point and erosion control measures must be utilized where the stream banks are disturbed. Where the stream bed is not composed of rock, a pad of clean rock must be used at the crossing point. All temporary fill must be completely removed after the work is completed.

M. Construction debris must be kept from entering the stream channel.

N. All spills of petroleum products or other chemical pollutants must be reported to the appropriate emergency management agency and measures shall be taken immediately to prevent the pollution of waters of the State, including groundwater.

O. Upon achievement of final grade, the disturbed streambank shall be stabilized with riprap or other suitable material. All other disturbed soils must be stabilized and re-vegetated within 30 days by sodding or seeding and mulching. Seed to be utilized shall include combination of annual grains and grasses, legumes, and perennial grasses. Lime and fertilizer shall be applied as needed to achieve a vegetative cover.

P. Upon completion of construction, the stream shall be returned as nearly as possible to its original, natural conditions.

1.2 LIABILITY FOR NONCOMPLIANCE

A. The Contractor shall be liable to the Owner for any civil penalties or damages incurred by the Owner resulting from the Contractor's failure to comply with this section.

END OF SECTION