

March 18, 2016

CABLE ROUTING ALTERNATIVES

INTRODUCTION

First, I am looking at this from a permitting, impact and potential impact view point. What I am presenting here is based on my experience in permitting and in assisting in laying submarine cables.

I have evaluated 3 potential main routes and two landings on both LSJ and GSJ. I have tried to keep us well away from ESA listed species and have tried to create routes that will have the least potential for impact. I have also shown a suggested second cable route to an alternative feeder if it is desired.

GREAT BAY TO GSJ

The route would use the existing Great Bay Landing and tie into the existing Great Bay Manhole. The cable would parallel the existing electrical line until it is north of Great St. James and then it would veer off into the northern bay. I am suggesting a western shoreline landing past the near shore coral habitat which is present along the western shoreline. There are some seagrass beds but they have been disturbed by past activities and we can land through the deeper portion of the bay minimizing impact during the lay. The landing would be at the very edge of the cobble where the beach grades into sand. The beach manhole could be placed back behind the vegetation line and the cable buried across the shoreline minimizing any visual impact. There are some Endangered Species Act (ESA) listed corals along the western shoreline but we should be able to stay well clear of these. The eastern side of the bay is not an option due to water depth and dense seagrass colonization.

This route would be 9400' and it is possible we could shave a little off based on our findings when we survey the entire route.

Only about 30' of articulated pipe will be required at each landing due to bottom conditions and self-burial of cable.

EAST LSJ TO GSJ

This route would parallel the existing cable coming out of GSJ. The cable would be laid to the north of the existing cable and would parallel the cable slowly veering off past the reefs into the northern facing bay swinging wide to avoid the reef near the entrance the cable would then land at the same location proposed for the Great Bay Cable. Again there are ESA corals on the western shoreline of the GSJ landing. There are also scattered ESA corals within the bay in LSJ, but we should be able to easily avoid these by careful routing giving them a wide berth. There will also be ESA listed on the offshore reefs in this area and we will give them a wide margin of error to prevent impact as the cable settles.

The route is approximately 9250' and again it may be possible to shave off some length as we do the entire route survey.

The GSJ landing would only require approximately 30' of articulated pipe protectors but the LSJ side will require about 250' to get it over the nearshore pavement, once the cable reaches the sand it should self-bury.

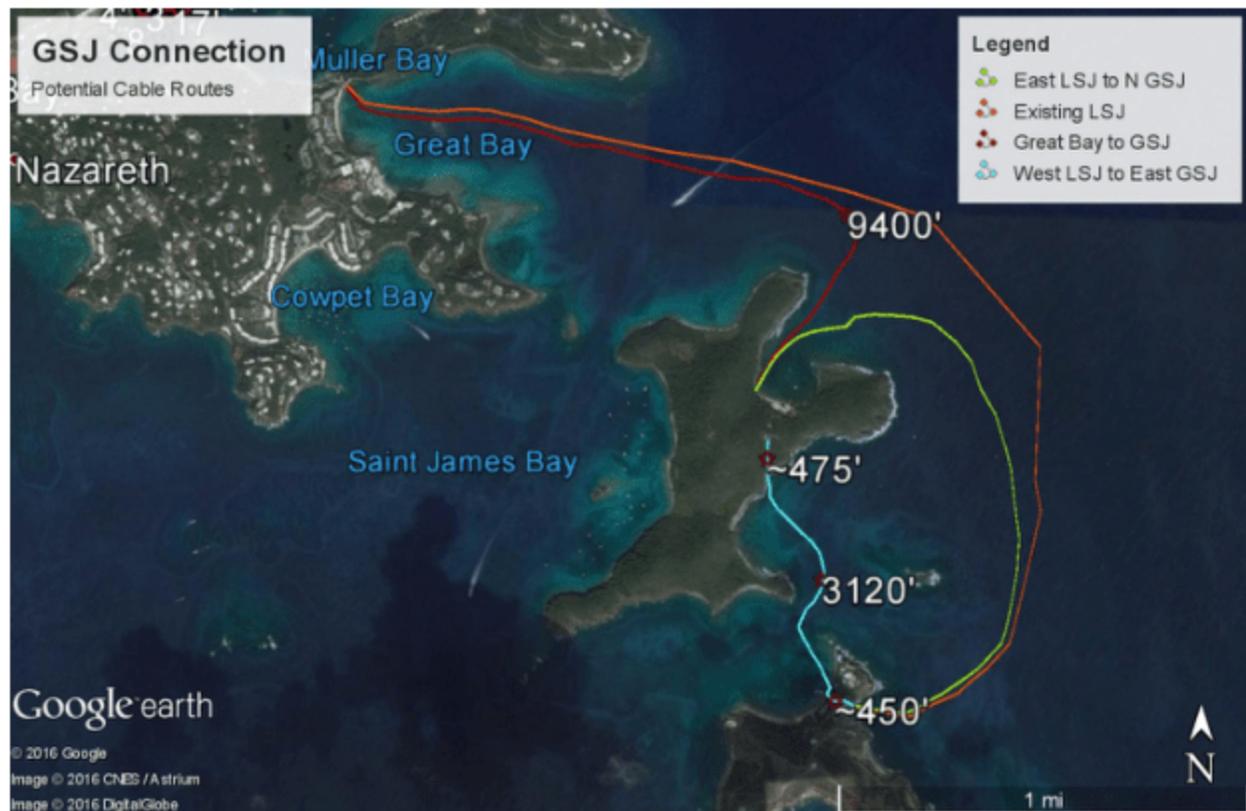
WEST LSJ TO EAST GSJ

This is by far the shortest route, but does require crossing LSJ on land and putting a new beach manhole on the west side of LSJ. The cable could be buried in the roadway which crosses the island and the landing would be to the north of the boat/barge ramp. Riprap could be moved to place the cable and articulated pipe and then replaced to cover the line and assist in protecting the cable. The cable would then run through the sparser seagrass beds through the cut between the two islands into the existing sand channels and come up across an area of sparsely colonized pavement on the cobble beach below the maintenance warehouse on LSJ. A manhole could either be placed on the beach or the cable could be carried all the way up to the maintenance area and terminate there. There are some ESA corals to the north of the GSJ landing but here again these should be easily avoidable.

This route is only 3120' in length in water and 450' on land on LSJ and 475 on land on GSJ.

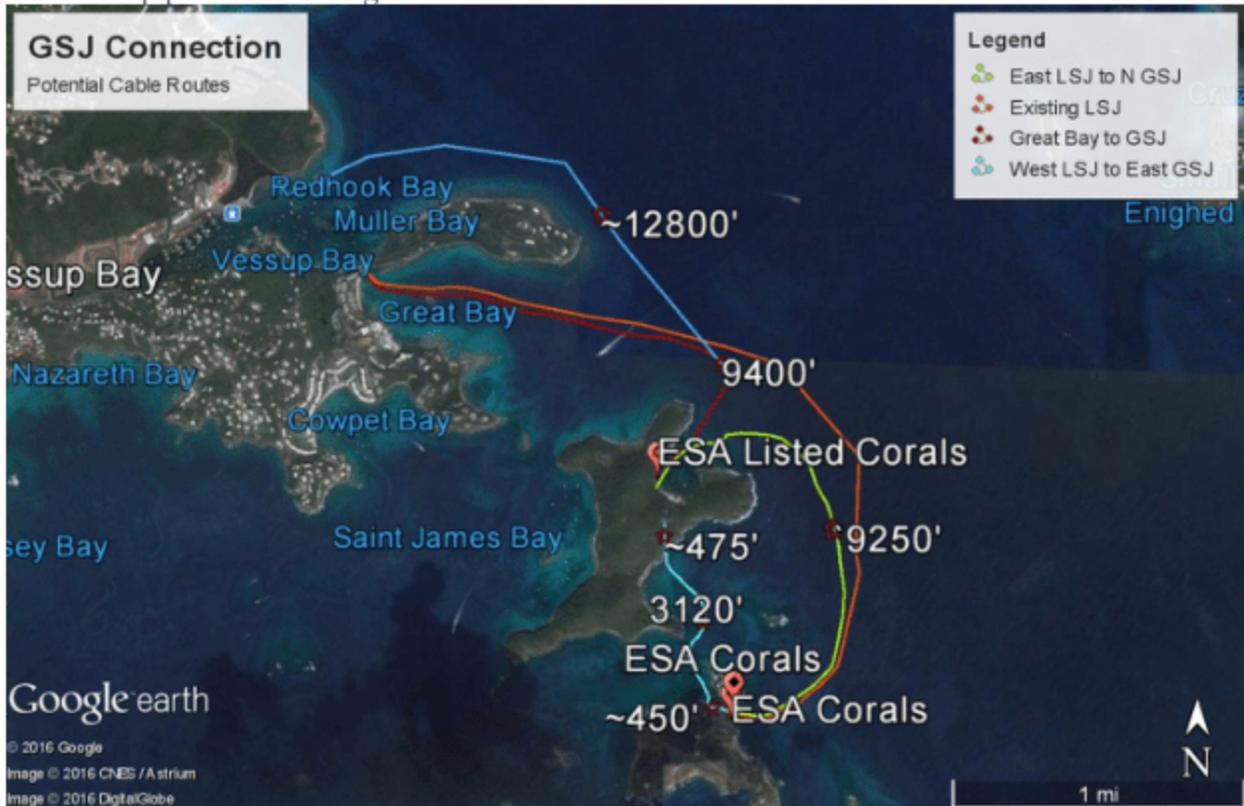
Approximately 30' of articulated pipe would be require on LSJ and approximately 275' on LSJ.

I know that there has been some discussion able the difficulties of placing the land cables, however considerations should be given if at all possible. The shorter cable has far less potential impact than the other two cables simply by the virtue of its length.



Potential Routes

These routes all are coming from a single feeder. If a redundant loop is desired it would be best for it to come out of the Redhook landing. This cable could come out south of the waterline and then proceed around Cabrita Point into the northern bay. This could provide a loop connecting two different feeders from St. Thomas. This cable is approximately 12800' in length and would require approximately 30' of articulated pipe at each landing.



We need to evaluate each of these routes carefully. All are permissible, and all avoid ESA species to the greatest degree possible. As soon as we select a route I will do the entire route survey and can tie down the length. These are however good estimates of the length required, a 10%-15% allowance should be included to allow for issues during the lay.

Respectfully submitted,

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